KOMATSU

2016

Environmental Report Digest

Contents

Editorial Policy

- The Environmental Report Digest 2016 is a digest regarding environmental activities, based on content from the "Environmental Report" and "Data" from the website.
- As part of the initiatives in the environmental field, we have presented the new main initiatives or representative activities.
- The content of the "Environmental Report" and "Data" can be viewed on our website, as well as (1) general information, such as policies and general rules, (2) information on ongoing activities and initiatives, and (3) a comprehensive disclosure of detailed and related information.
- Each item of the "Environmental Report" and "Data" on this website indicates that it has received an independent practitioner's assurance.

  Website: http://www.komatsu.com/CompanyInfo/csr/

Scope of This Report

Komatsu (parent company) manufacturing facilities, specifically the following eight plants

The Awazu Plant, the Kanazawa Plant [including the Kanazawa-Daiichi Plant and the Kanazawa-Daini Plant], the Osaka Plant [including the Rokko Plant], the Ibaraki Plant and the Oyama Plant [including Komatsu Cummins Engine Co., Ltd., Industrial Power Alliance Ltd. and GIGAPHOTON, Inc.], the Koriyama Plant, and the Shonan Plant [including KELK Ltd.], the Tochigi Plant.
Komatsu Group manufacturing facilities in Japan, specifically the above eight plants and the following four business units Komatsu Castex Ltd., Komatsu Cabtec Co., Ltd., Komatsu NTC Ltd. and Komatsu House Ltd.

Komatsu Group manufacturing facilities outside Japan, specifically the following 20 plants

Komatsu America Corp.,[Chattanooga Manufacturing Operation], [Peoria Manufacturing Operation], [Newberry Manufacturing Operation], Komatsu do Brasil Ltda., Hensley Industries, Inc. (The Americas), Komatsu UK Ltd., Komatsu Hanomag GmbH (Germany), Komatsu Mining Germany GmbH, Komatsu Manufacturing Rus, LLC, Komatsu Italia Manufacturing S.p.A (Italy), Komatsu Forest AB (Sweden), PT Komatsu Indonesia Tbk, PT Komatsu Undercarriage Indonesia, Bangkok Komatsu Co., Ltd., Komatsu India Pvt. Ltd., Komatsu Shantui Construction Machinery Co., Ltd., Komatsu (Changzhou) Construction Machinery Corporation, Komatsu (Changzhou) Foundry Corp., Komatsu (Shandong) Construction Machinery Corp, and Komatsu Undercarriage China Corp.
Komatsu Group manufacturing facilities including outside Japan: All of the 32 above-mentioned offices are shown.

Period Covered

This report principally covers data for the period from April 2015 to the end of March 2016, with some information from after April 2016.

Message from Top Management

Strengthening and Promoting Environmental Endeavors for based on the Komatsu Way

President
Tetsuji Ohashi

Endeavors for the Environment based on ESG

ESG, which we have been working on for a long time, will increase in importance more and more in the future. In the Mid-term Management Plan "Together We Innovate GEMBA Worldwide" beginning in April 2016, ESG is considered a priority area in our endeavors.

Within this plan, we have set environmental objectives based on the spirit of Komatsu Way, to make the most of our competitive strength in manufacturing products so that Komatsu becomes an indispensable presence for our customers. In terms of CO_2 emissions during the life cycle of construction equipment, preliminary calculations show that approximately 90% of all emissions over the life cycle is emitted from the construction equipment being used at the workplace (Gemba) of the customers, so it is clear that reduction of these emissions is vital. From this, we have set a target to reduce CO_2 emissions in the use of Komatsu products by 25% per workload by the year 2025.

Furthermore, by making the most of Komatsu's strength in product manufacturing, we will set high target rates for the reduction of CO_2 in production and proactively work towards achieving these goals.

Endeavors for Environmental Issues based on Innovation

As a part of Komatsu's endeavors to reduce CO_2 emissions when customers are using construction equipment, we have approached the issue from the three points of "Dantotsu Products", "Dantotsu Services" and "Dantotsu Solutions". As a Dantotsu Product, we introduced the first hybrid hydraulic excavator to the market world-wide in 2008, and as a Dantotsu Service, we have recommended a fuel-efficient method of driving based on KOMTRAX. "Smart Construction," which began in Japan in February 2015, is a "Dantotsu Solution" by Komatsu that makes the safety and high productivity of the "Gemba of the Future" a reality through the automation of equipment operation by ICT construction equipment and by using ICT technology to connect all data involved in a construction site, such as measurement data, design data, and work progress. The efficiency of construction equipment operation will be increased dramatically and, as a result, the amount of CO_2 emissions per workload will be greatly reduced. By spreading these innovations, Komatsu will contribute to solving the environmental issues of the construction sites (Gemba).

Endeavors for Environmental Issues of the Manufacturing Sites through Strengthening Competitiveness in Product Manufacturing

Activities to cut electricity use in half within Komatsu's domestic plants have been progressing, and we were able to achieve a major reduction in the amount of electricity purchased by FY2015. Going forward—together with our business partners—we will promote innovations in the manufacturing sites using "Connectivity" through IoT, achieve even higher levels of energy conservation, and strengthen our competitiveness in product manufacturing, as we continue to work on finding solutions to environmental issues.

July 2016

Contributions to the Local Region through Forestry

-Using Biomass Energy from Unused Timber from Forest Thinning-

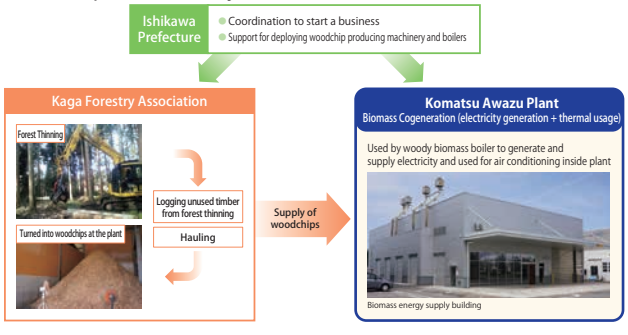
Special Story

Komatsu's Awazu Plant, in cooperation with Ishikawa Prefecture's KAGA Forest Association, has taken the unused timber produced by forest thinning from the local forestry industry to be used as biomass chip fuel. By doing so not only is the Komatsu Awazu Plant reducing the amount of electricity and oil purchased and decreasing its CO_2 emissions, it is also contributing to the vitalization of the local forestry and other indigenous industries, as part of its aim to promote activities that build up the local region.

Taking into consideration the electrical power condition after the Great East Japan Earthquake in 2011, Komatsu has been promoting activities that will result in halving the amount of electricity used. The Awazu Plant in Ishikawa Prefecture constructed a cutting-edge assembly plant and incorporated various energy-saving and energy-creating measures in order to aspire to the goal of decreasing its electricity purchase for the new plant by over 90%. One such measure considered was the use of renewable energy, and the decision was made to make use of electricity and heat energy supplied by biomass cogeneration. With the aim of contributing to the vitalization of the local forestry industry by purchasing the necessary woodchip fuel from local foresters, in February 2014 the Awazu Plant entered into the "Comprehensive Collaboration Agreement regarding the Forestry Industry" with the Ishikawa Prefecture and the Ishikawa Prefecture Forestry Cooperative Federation. Based on this cooperative relationship, the deployment of the biomass cogeneration system has progressed at Komatsu and the KAGA Forest Association has started up a woodchip fuel business to supply it to the Komatsu Awazu Plant.

As a part of this effort, the local industries have developed a woodchip manufacturing machine with even better manufacturing capabilities, which has made the more stable production of woodchips possible. In this way, the energy-saving and energy-creating efforts of the Awazu Plant has lead to cooperation with the local manufacturing industries and the vitalization of the local industries.

Examples of Woody Biomass Use Model



Komatsu's Biomass Cogeneration System

The Biomass Cogeneration System that Komatsu deployed this time produces high-pressure steam by burning chip fuel in a steam boiler. The energy of that steam is then used to first, create compressed air with a steam compressor; next, electricity is generated by a steam-electric generator; then finally, the heat exchanger changes it to hot or cold water for heating and cooling. With this system, it has become possible to use the heat produced by the steam boiler in a highly efficient way. And, though heat use efficiency using the steam electricity generation alone is usually 15 to 20%, by using the heat effectively for things other than electricity generation, a high heat use efficiency of approximately 70% can be achieved, leading to a reduction in energy cost.

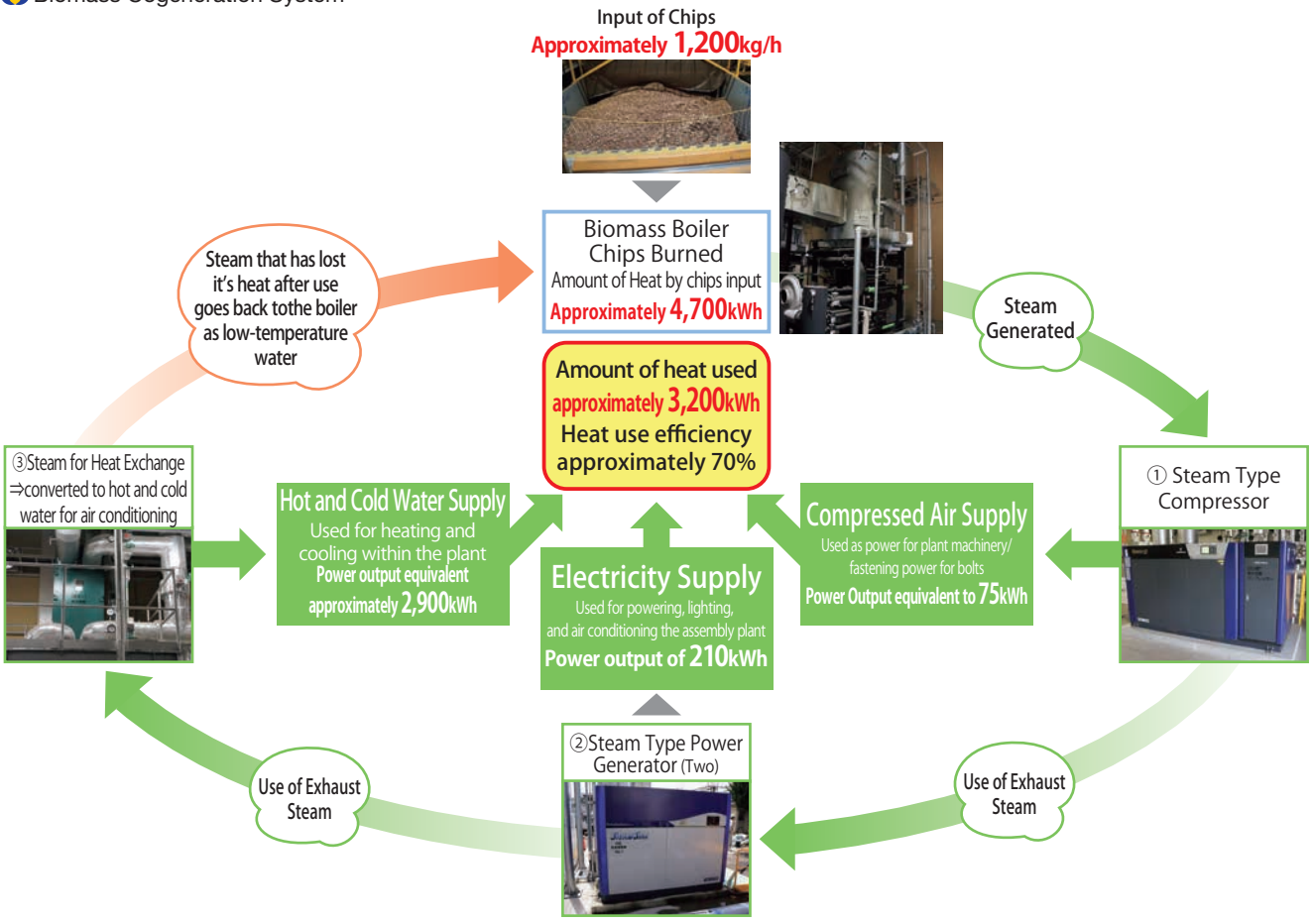
The Biomass Cogeneration System of the Awazu Plant has gone into full-scale operation since April 2015, and by using it for electricity, compressed air, hot and cool energy, a savings of approximately 1,400MWh of purchased electricity and approximately 800 kiloliters of oil is expected annually.

Woodchip Production by the KAGA Forest Association

As a result of these efforts, the KAGA Forest Association has taken this opportunity to begin a new business of producing woodchips from materials such as listing and unused lumber from forest thinning. They cooperated with Komatsu's local business partner to develop a new woodchip production machine. The new machine has been able to achieve more stable operation compared to previous models, and has made it possible to get a steady supply (7,000 tons/year) of woodchips.

In addition, Ishikawa Prefecture is expecting that there will be a decrease in damage from heavy rains and flooding due to reduced flood wood diffusion, as well as damage from harmful wildlife being prevented, as a result of the forests being cleared of unused lumber from forest thinning and residue materials being left in the forest.

Biomass Cogeneration System



Woodchips Production by the KAGA Forest Association

Woodchips Production Building and Lumber for Woodchips

Newly Developed Woodchips Production Machine

Woodchip Product

Contributing to Society/Local Regions through Core Business

It is hoped that the activities and efforts introduced thus far can provide the following effects, and contribute to Komatsu's goal of solving problems facing society and the local regions through Komatsu's core business.

(1) Contributing to the vitalization of local forestry (Business of turning unused materials into woodchips)
(2) Energy cost reduction and decrease in CO_2 emissions for Komatsu (Implementation of high efficiency Biomass Co-generation System)
(3) Contributing to the vitalization of local businesses (new sales of the woodchip production machine)
(4) Contributing to sustaining a healthy natural environment and regional revitalization based on cooperating with the local government.

Komatsu will provide support to the local forestry and farming with the technology and know-how that it has developed, and hopes to continue contributing to building up the local region and the vitalization of entire local industries.

Voice

–Beautification of the Mountains by Effective Utilization of Unused Materials –

Effective utilization of the listing and timber from forest thinning that had been left neglected was one of the problems of the forest association. This production of woodchips makes effective use of unused materials and thereby cleans up the mountains, which in turn makes the forest owners happy, and is therefore considered a very good thing. Hereon, we would like to keep promoting efficiency and improving the revenue aspect to aim for sustainable forestry.

KAGA Forest Association
Nata Plant Deputy General Plant Manager
Kensaku Tanaka

Pursuing Environmental Management

Komatsu promotes environmentally-friendly activities throughout the entire Group to realize its vision of "What Komatsu Can Do and What It Must Do" for the environment and sustainable development.

Komatsu's Relationship with the Environment

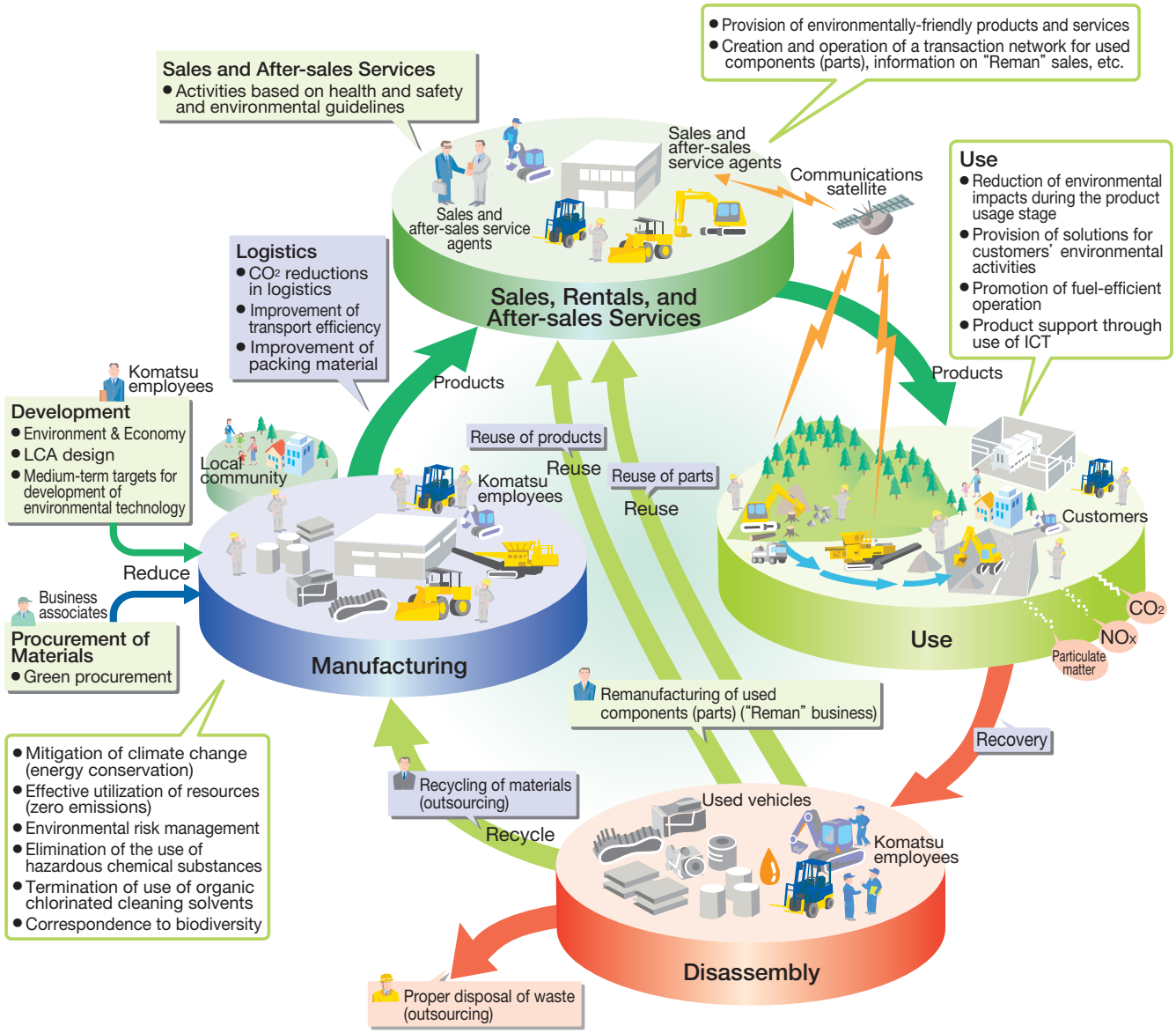
In recognition of the fact that our business activities affect the environment on a regional and global level, we, at Komatsu, have placed the focus on the following four key areas:

1) Climate Change
2) Establishment of a Sound Material-Cycle Society
3) Conservation of Air, Water and Other Natural Resources as well as Management of Chemical Substances
4) Biodiversity

In line with the Komatsu Earth Environment Charter revised in 2010, the Komatsu Group embarks on global initiatives across business areas guided by the fundamental principles of

(1) Contributions to Realization of Sustainable Society,
(2) Simultaneous Realization of Environmental and Economic Performance, and
(3) Observance of Corporate Social Responsibility.

Relationship of the Komatsu Group's Business Activities with the Environment



Komatsu Earth Environment Charter (June 2010 revision)

〈Corporate Principles〉

1. Contributions to Realization of Sustainable Society

Mankind must not only promote the further growth of a rich and comfortable society but also pass down this indispensable environment of our planet earth to future generations in a sound and healthy condition.

We, at the Komatsu Group, define environmental conservation efforts as one of the highest priority management tasks, and endeavor to contribute to the sustainable growth of society by integrating advanced technologies into environmental conservation efforts in all our business activities. This is represented by our hybrid construction equipment which features a substantial reduction of CO_2 emissions while in operation and by our superior manufacturing.

2. Simultaneous Realization of Environmental and Economic Performance

We are committed to improving both environmental performance and economic efficiency, as a group of companies working toward superior manufacturing for customer satisfaction. To this end, we constantly take up the challenge of advancing technologies to develop creative products that improve both environmental performance throughout the product's life cycle and the product's economic performance at the same time.

3. Observance of Corporate Social Responsibility

Each company of the Komatsu Group promotes environmental conservation by not only complying with the applicable laws and regulations of the concerned host community, region and country but also by establishing its voluntary standards which consider global and local environmental concerns. Each company of the Group also strives to fulfill its corporate social responsibility by actively participating in local environmental conservation programs and thereby promoting close-knit communication with local communities, while striving to become a company trusted by all Komatsu stakeholders.

〈Guidelines for Corporate Activity〉

1. Basic Stances on Earth Environmental Problems

We, at the Komatsu Group, work for sustainable society and earth environment through our global business operations by addressing the following four environmental problems with the stances discussed below.

1) Climate Change

We will reduce the use of energy and emissions of greenhouse gas in all phases of our business activities ranging from research and development, procurement, production and logistics to sales and service as well as in the total life cycle of our products and services.

2) Establishment of a Sound Material-Cycle Society

Through our business processes, we work to minimize the use of natural resources, such as materials and water, promote their re-use or recycle them as much as possible, and expand Zero Emissions from our manufacturing activities around the world. At the same time we ensure the thorough management of waste materials in all our business domains, including our suppliers and distributors. We also continuously work to increase the recyclability rate of products at the time of disposal.

3) Conservation of Air, Water and Other Environments as well as Management of Chemical Substances

We comply with not only local laws and regulations but also with our established standards concerning the conservation of water quality, prevention of air pollution, noise and vibrations.

As much as possible, we also ensure the thorough management of chemical substances for use in our business activities, while continuously reducing the use of potentially harmful chemical substances or replacing them with alternative substances for discontinuation of their use.

4) Biodiversity

We recognize biodiversity as one of the important issues concerning the earth environment, evaluate, understand and analyze impact on it in all our business domains, and work on our tasks according to the criteria of the highest impact and/or the most effective actions.

2. Framework of Global, Group-wide Environmental Management System

The Komatsu Head Office, as well as the manufacturing facilities and main companies of the Komatsu Group, already with ISO certifications, will work to maintain and improve their environmental management system, while other manufacturing facilities and suppliers will also work to establish their environmental management systems and reduce their environmental impact.

The Komatsu Environmental Committee develops environmental action plans and common guidelines for the Komatsu Group. Based on these Group-wide plans and guidelines, each division or company sets up its own mid- to long-term targets, develops and implements specific action plans, reviews them regularly and works to continuously improve them.

3. Environmental Education and Communication

We believe that it is important to enhance the environmental awareness of each and every employee and thereby actively promote environmental awareness and education programs for all employees.

We will gather environment-related information concerning not only our manufacturing facilities but also other related entities, such as major affiliated companies and suppliers, and strive to disclose such information, thereby facilitating proactive communication with all our stakeholders, such as customers, employees, local communities and suppliers and further expanding the content of environmental communication.

Environmental Action Plan and Results for FY2015

To promote the Komatsu Earth Environment Charter, the company formulates environmental action plans (implementation policies) for each field, establishes action targets for each fiscal year, and steadily advances its policies, while following up on their implementation status.

The detailed Environmental Action Plan and Results for each field are as follows.

Environmental Management

Implementation policies	Objectives for FY2015	Results for FY2015	Medium- and long-term objectives
1. Strengthen environmental management systems	● Recieve a certificate continuity audit and continue the certification. ● Certification of overseas production sites (1 company)	● Recieved a certificate continuity audit and continued the certification ● One company (YNC) obtained certification	● Acquisition of integrated certification by the Komatsu Group Sales Agencies in Japan
2. Environmental education and training: Implement the education plan	Draw up and promote the education plan	● Held 14 courses with over 8,000 participants	Continue to organize courses and expand them to overseas locations
3. Conduct environmental audits for overseas subsidiaries	Environmental audit of an affiliated company in Thailand	● Implemented environmental audit at BKC	Continuation of activity
4. Environmental communication: Publish a CSR & Environmental report	Formulate a communication plan and publish the report	● Published both the Japanese version (Web) and the English version (Web) in July 2015	Enhance the quality of the content; continue to release report in early stage

Research and Development

Implementation policies	Objectives for FY2015	Results for FY2015	Medium- and long-term objectives
1. Reduce the environmental impact of construction equipment and industrial vehicles Develop low-emission construction equipment (compliant to emission standards)	Develop vehicles compliant with Tier4 emission standards	● Developed vehicles equipped with engines compliant with Tier4 final emission standards (PC138USLC-11, WA500/600-8, PC45/55MR-5, GD655-6 and more)	Development of vehicle compliant with STAGE V emission standard effective from 2019
Reduce CO_2 emissions from construction equipment and industrial vehicles (improve fuel efficiency of products)	Reduction in emissions with Tier4 emission standard (Hydraulic excavators: 10-13% reduction compared to Tier3)	● Achieved 8% to 10% reduction in emissions with vehicles complaint to Tier4 final emission standards (PC138USLC-11 and more)	Decrease emissions by 10% from Tier4 standard compliant vehicles (hydraulic excavators) by FY2015 and 20% by FY2020
	Reduction in emissions with hybrid vehicle (Hydraulic excavators: 25-35% reduction in emissions compared to current Tier3-normal vehicles)	● Development of Tier4 final compliant hydraulic excavator (HB335-3 and more)	Decrease emissions by 35% from Tier4 standard compliant hybrid vehicles (hydraulic excavators) by FY2015 and 40% by FY 2020
	Develop ICT construction equipment	● PC development work in progress: PC128USi-10	(in progress)
Reduce CO_2 Emissions from construction equipment and industrial vehicles (Biodiesel Fuel (BDF) measures: Carbon Offset)	B7 to B20 mixed light oil measures	● Already compliant with B10 state regulations in North America while working shift compliance from B15 to B20 in Indonesia	Use of B30-compliant light oil blended with BDF from 2020 (Indonesia)
Improving recyclability rate of construction equipment and industrial vehicle	Achieve 99±0.5% for recyclability rate equipment compliant with the next developed vehicles	● Achieved 99% on a developed vehicle (Tier 4 Final emission standard-compliant vehicle, ICT construction equipment)	Achieve recyclability rate of 99.5±0.5%
Strictly control and reduce substances of environmental concern in construction equipment and industrial vehicle	Maintain reduction of hazardous substances at 75% reduction compared to 1998 levels	● Maintained 80% reduction of hazardous substances with newly developed vehicles as compared to 1998 levels ● Realized cuts in lead usage in crawler-type construction equipment	Reduce lead usage by 90% as compared to 1998 levels by 2017
	Reduce the use of lead in vehicles newly developed	● Promoted the replacement of lead solder in residual parts other than electrical parts (tank fillers)	-
	Utilize a separate hazardous substances control system for each product type (to comply with REACH regulations)	● Registered additional new 7 substances of SVHC under the EU REACH regulation, and controlled the usage of those SVHC substances. Conducted surveys of substances for EU destination models and EU mass production and development models (Implementation of component-specific substance surveys) ● The control system is being deployed in other overseas countries (other than EU)	Manage substances of each component pursuant with new data
2. Reduce the environmental impact of industrial machinery Market high-performance AC servo presses	Develop and expand business affiliations for AC servo presses	● Released three models and lines in the H1F Series and also promoted development of other models and lines	Expand AC servo press models and lines
Market the energy-saving fiber laser cutting machine	Development of the fiber laser cutting machine	● Released an updated control model of a three-dimensional fiber laser cutting machine (TLH) and also promoted development of other lines	Expand business affiliations and applications
Market high-efficiency wire saws for solar cells	Develop ultra-fine wire-ready machines	● Took part in the implementation of the NEDO joint R&D project as a developer of processing technology "Development of Technologies for Cutting the Cost of Power Generation through High-Performance, High-Reliability Solar Power Generation."	Cut the cost of power generation through enhanced power generation efficiency and use of slimmer wafers
Market compact machining center	Develop energy-saving compact grinders	● Developed a demonstration line (under development)	Cut the amounts of electricity, air and coolant consumption by 50% compared to their previous levels
Market thermoelectric power generation that uses waste heat from plants	Development of thermoelectric generation system and volume-production of modules	● Promoting the practicalization of thermoelectric generators and launched volume-production of self-supported power supply modules	Commercialization
3. Promote reuse and recycling Expand and promote the remanufacturing ("Reman") business and improve recyclability rate	Promote and expand the Reman business	● Enhanced QCD through increased site-to-site sharing of remanufacturing engineering information ● Implemented the concept of remanufacturing into general construction machinery components ● Opened a remanufacturing center in Myanmar	● Promote reuse and recycling through further improvements in recycling-related technologies for parts ● Stimulate reuse and recycling worldwide by expanding Reman bases to accommodate demands

Manufacturing

Implementation policies	Objectives for FY2015	Results for FY2015	Medium- and long-term objectives
1. Mitigation of climate change (energy conservation) Make a 54% improvement by FY2015 in the amount of CO_2 emissions per unit of manufacturing value compared to the FY2000 level at the Komatsu Group manufacturing facilities in Japan	An improvement of 54% compared to FY2000	● Improved 42.7% from the FY2000 level (5.8 point reduction compared to the previous year)	Achieve a 57% reduction by FY2020 compared to the FY2000 levels
Make a 41% improvement by FY2015 in the amount of CO_2 emissions per unit of manufacturing value compared to the FY2005 level at the Komatsu Group manufacturing facilities outside Japan	An improvement of 41% in FY 2015 compared to FY2005	● Improved 33.2% compared to FY 2005 (0.2 point improvement compared to the previous year)	Achieve a 32% reduction by FY2020 compared to the FY2010 levels
2. Effective utilization of resources Maintain or make further progress in attaining 99.5% or greater recyclability rate by FY2015 (improvement towards zero emissions)(Komatsu Group manufacturing facilities in Japan)	Attain a recycling rate of 99.5% or greater	● Attained a recycling rate of 99.7% across the Komatsu Group (Japan)	Continue a recycling rate of 99.5% by FY2020
Maintain or make further progress in attaining 95% or greater recyclability rate by FY2015 (Komatsu Group manufacturing facilities outside Japan)	Attain a recycling rate of 95% or greater by FY2015	● Attained a recycling rate of 93.8% across the Komatsu Group (overseas)	Continue a recycling rate of 95% by FY2020
Achieve a reduction of more than 20% by FY2015 in the amount of waste generated per unit of manufacturing value compared to the FY2005 level (Komatsu Group manufacturing facilities in Japan)	Improve 1% over the previous fiscal year	Achieved a 50.7% reduction in the amount of waste generated per unit of manufacturing value compared to the FY2005 level (improvement of 8 point compared to the previous year)	Achieve a 10% reduction by FY2020 compared to the FY2010 level
Achieve a reduction of more than 50% by FY2015 in the amount of water used per unit of manufacturing value compared to FY2005 (Komatsu Group manufacturing facilities in Japan)	Improve 3% over the previous fiscal year	● Achieved a 67.5% reduction in the amount of water used per unit of manufacturing value compared to the FY2005 level (improvement of 4.2 point compared to the previous year)	Achieve a 40% reduction in FY2020 compared to the FY2010 level

Implementation policies	Objectives for FY2015	Results for FY2015	Medium- and long-term objectives
3. Environmental risk management Implement voluntary reductions in the release of chemical substances including volatile organic compounds ("VOCs"), which constitute the majority of chemical substances released	Establish a control system for chemical substances and reduce the amount of released chemical substances	● Accomplished a 57.5% reduction in the amount of VOCs released per unit of manufacturing value over the FY2005 level	Achieve a 50% reduction compared to the FY2005 level
Undertake soil and groundwater remediation (Komatsu Group manufacturing facilities in Japan)	Continue the cleanup	● In progress	Complete the cleanup work
Sequentially address each underground tank that has been in operation for 20 years or more (Komatsu Group manufacturing facilities in Japan)	No applicable underground tanks	● No applicable underground tanks	Sequentially address each underground tank that has been in operation for 20 years or more
4. Other Improve greenery rate by 20% or greater by FY2015 across the Komatsu Group. (Komatsu Group manufacturing facilities)	● Greenery Rate 20% or greater	● Komatsu Group achieved a total rate of 20.2%	Continue the Greenery Rate 20% or greater

Procurement and Logistics

Implementation policies	Objectives for FY2015	Results for FY2015	Medium- and long-term objectives
1. Green procurement Promote improvements at suppliers through the establishment of environmental management systems ("EMSs") and by specifying matters that require environmental consideration	Provide guidance and support to member companies of the Komatsu "Midori-kai" for acquiring integrated certification of their environmental management systems	All subject companies acquired certification for a total of 164 certified companies, and are promoting environmental management activities	Within three years, have newly admitted Komatsu "Midori-kai" admission company masters attestation of environmental management systems (ISO 14001, Eco-stage, etc.)
2. Environmental conservation in logistics Reduce CO_2 emissions per unit of cargo weight generated through shipping of products and components (Komatsu manufacturing facilities in Japan) (in the scope of revised Law concerning the Rational Use of Energy of Japan)	Improve CO_2 emission per cargo weight (kg-CO_2/ton) by 27% compared to FY2006 levels	● Reduced the basic unit of CO_2 emissions from 26.3 to 21.4 kg-CO_2/ton, down 18.6% from its FY2006 level, but it was short of the goal. ● Increased in the ratio of domestic vessel usage for the Tohoku region since FY2011, and also in the ratio of railway usage, one prioritized area of improvement, since FY2014. Given a further 1.5% increase, the goal could have been attained, but the basic unit has increased 9.4% compared to the previous year under the influence of a worsening logistics environment in FY2015, that is, an increased distance per shipment (up 3.8%) and a reduction in the cargo weight per shipment (down 11.2%) due to a narrowing volume of large-size machinery.	Reduce the basic unit of CO_2 emissions (kg-CO_2/ton) from the shipment of predefined products and parts by 32% compared to its FY2006 level by 2020 as a new mid-term objective for FY2020 (tertiary plan). Apply this plan until a 27% reduction is achieved in the secondary plan, after which switch to the tertiary plan (14 Komatsu logistics facilities in Japan).
Shift to means of shipping with low environmental impact	Promote modal shifts in shipping from trucks to domestic vessels or rail	● The total modal shift rate in FY2015 was 29.7% (+13.5% compared to FY2006: +5.8% by railway, +7.7% by domestic vessels) ● By proactively increasing the usage of domestic vessels in place of long-distance trucking to the north-east, which increased due to the Great Eastern Japan Earthquake Disaster after FY 2011. A higher rate of railway transport has been pursued as a prioritized area of improvement since FY2013. ● Ratio of modal shift since FY2014: 29.1% ⇒ 29.7% (up 0.6%) (Ratio of modal shift over transport distances of 500 km or longer: 49.2% ⇒ 49.1% (-0.1%))	Continue to promote modal shifts. Switch from long-distance trucking to domestic vessel shipment through modal shifts, enhancing the transportation of products manufactured at Tochigi Plant to Shikoku and Kyushu on a priority basis. Expand rail usage for Oyama, Koriyama and Awazu Plant components: engines, hydraulic equipment, transmission, etc.
	Shift to battery powered forklifts	● Forklifts used for in-plant logistic purposes have been shifted to hybrid and battery-powered models to lessen their environmental impact. In FY2015, the ratio of the number of hybrid and battery-powered forklifts rose to 51.5%, up 32.1% compared to its FY2006 level, after efforts to drive the installation of new Komatsu battery-powered forklifts in each plant. (Ratio of the number of battery-powered forklifts: 46.1% in FY2014 ⇒ 51.5% (+5.4%) in FY2015)	Set new mid-term objectives for FY2020. Replace engine-powered forklifts rated at 3 tons or less with new Komatsu battery-powered forklifts to boost the ratio of the number of battery-powered forklifts to 75% or above in a continuing bid to cut environmental burdens. Aim to migrate all of forklifts rated at 3 tons or less to battery-powered models.
Measures for protecting biodiversity and reduction in wood used in packaging containers (Avoid excessive logging of trees and the risks of immigration and emigration of nonnative species in wood)	Reduction in the usage of wooden/cardboard packaging containers Reduce the basic unit of usage per cargo weight (kg-CO_2/ton) by 10% compared to FY2010	● Efforts continued into FY2015 to cut packaging material requirements, mainly wooden materials, with a view to protect biodiversity. Amount of wood/cardboard used inFY2015: 4,692 tons Achieved a reduction by 24.8% compared to FY2010	Set new mid-term objectives for FY2020. Improve the basic unit by 20% or more compared to FY2010. Continue cutting the basic unit of usage of wooden/cardboard packaging per cargo weight.
Strive to eliminate the procurement of new wrapping materials through promotion of returnable packaging containers.	Promote the returnability of packaging containers	● Expanding scope of returnable general-purpose wooden packaging container usage, which had been pursued on a priority basis, has helped cut wooden packaging requirements. The ratios of prioritized improvement parts returnability have improved compared to their FY2010 levels as follows: -Ratio of packaging case returnability for spares: 6.0% ⇒ 52.1% (+46.1%) -Ratio of general-purpose packaging case returnability for CKD parts: 33.1% ⇒ 54.9% (+21.8%)	Proceed with further improvement efforts to achieve "zero" procurement of new packaging materials as a prioritized area of improvement. Continue improvement in the returnability ratio of containers designated for CKD parts. Further improve the returnable rate of general-purpose containers for CKD/spare parts. Pursue returnability of item-packaging inner cases for spares as well.
Drive better transport efficiency	Increase the size of shipped units to large lots	● Ratio of CKD plant vanning: 99.4% ⇒ 99.8% (+0.4%). ● Ratio of spares plant vanning: 99.3% ⇒ 99.2% (-0.1%).	Prioritized improvement activities come to completion as upsized transportation units resulting from an expanding scope of containerized transportation have reached a predefined management maintenance and management level.
Cut transportation distances	Continue improving to reduce the distance per shipment by utilizing nearby ports	● Exportation of construction machinery manufactured at Awazu Plant Kanazawa Port utilization for exportation of construction machinery manufactured at Awazu Plant for FY2015: 44.6% (up 30.1% compared to the 2006 level, attaining 50% of the mid-term goal) ● Exportation of presses manufactured at Kanazawa Plant Kanazawa Port utilization for exportation of presses manufactured at Kanazawa Plant for FY2015: 59% (quantity basis), 91.4% (weight basis). Kanazawa port utilization for FY2015 rose 15% compared to the previous year level after modifications to medium-sized presses, advancing to 83%. ● Exportation of construction machinery manufactured at Ibaraki Plant Hitachinaka Port utilization for FY2015 was 97.0% against the mid-term goal of 95%, attaining and keeping up the mid-term plan.	Continue reducing transportation distance by utilizing near-by ports. A target usage rate has been achieved for Hitachinaka Port. It will be maintained and managed at 95% at least from now on. Target usage rate (products) for Kanazawa Port: Set a new mid-term objective of 57% for FY2020 in pursuit of higher usage.
From 2011 ● Implement environmental conservation activities in global logistics (both national and international) ● Improve CO_2 emission per cargo weight of shipping products and parts. (10 major overseas plants)	The basic unit of CO_2 emissions per cargo weight (kg-CO_2/ton) has improved 8% compared to its FY2011 level.	● Implementation of monthly tracking of data for CO_2 produced by shipment in 10 major plants in the Americas (2 in US, 1 in Brazil), EU (1 in UK, 1 in Germany) China (3), and Asia (1 in Indonesia, 1 in Thailand). ● FY2015 status of the basic unit of CO_2 emissions per cargo weight Up 2.6% compared to the FY2011 level, short of the goal (worsened) and up +2.5% compared to the previous year level. The basic unit of CO_2 emissions has worsened worsened from 56.5 to 57.9 (kg-CO_2/ton) after increases in trucking distance caused by shipment destination changes (trucking distance per transaction up 6.4%, from 640 to 680 (km/transaction)).	Committed to the 2020 mid-term goal of improving the basic unit of CO_2 emissions per cargo weight in the logistics of products and parts by 13% (10 major overseas Komatsu Group Plants).

Sales and After-sales Services

Implementation policies	Objectives for FY2015	Results for FY2015	Medium- and long-term objectives
Encourage Komatsu Group sales agencies and rental companies in Japan to reduce their environmental impact	Enhance awareness of the environment through education and training based on the Group's environmental guidelines	● Carried out activities for improvement through guidance provided during onsite visits to total 57 sites§·Regularly issued the Safety and Environment Newsletter (24 editions published yearly)	Support environmental risk reduction activities by Komatsu Group sales agencies and rental companies in Japan based on the Group's environmental guidelines

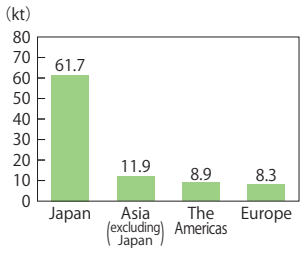
Relationship between Business Activities and the Environment

The Komatsu Group procures various parts and materials and, through the manufacturing process, utilizes the earth's resources, including raw materials, water, energy, and chemical substances, among others, to provide products to customers. Such business activities have the potential to impact the environment at each stage in the process.

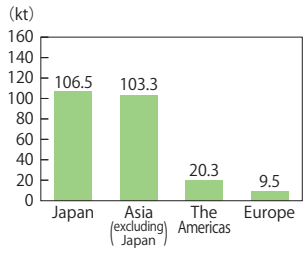
The Komatsu Group will continue to provide high value-added products and services while assessing the environmental impacts resulting from its business activities, formulating medium- and long-term objectives, and introducing measures to reduce such impacts.

CO_2 Emissions by Scope

Scope1: CO_2 emitted directly by manufacturing facilities
(by using generators, boilers, etc.)



Scope2: CO_2 emitted indirectly by manufacturing facilities
(by purchasing electricity, steam and hot water)



Environmental Impact Resulting from Business Activities of Komatsu Group Companies, including Facilities outside Japan (FY2015)

Input

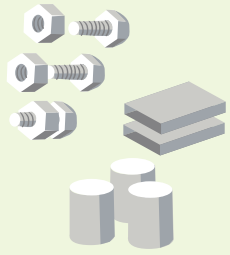
Direct Materials	
Steel	770,000t
Indirect Materials	
Paints	965t*1
Lubricants	13,048kℓ*1

Energy	
Electricity	554GWh
Heavy oil A	7,000kℓ
Kerosene	3,000kℓ
Light oil	7,000kℓ
Natural gas	12million Nm³
LPG	5kt
Gasoline	400kℓ
LNG	5,000Nm³
Steam	10kt
Other	4GWh

Water Resources	
Groundwater	2.3million m³
Industrial water	0.1million m³
Supply water	0.8million m³

Development
- Ecology & Economy
- LCA design
- Medium-term targets for development of environmental technology

Procurement of Materials
- Green procurement



Manufacturing (32 Komatsu Group Manufacturing Facilities in and outside Japan)
- Mitigation of climate change (energy conservation)
- Effective utilization of resources (zero emissions)
- Environmental risk management
- Elimination of hazardous chemical substances*1
- Termination of use of organic chlorinated cleaning solvents*2

Environmental Risks (Air, soil, and groundwater pollution)	
Measures for underground oil tanks	0units*2
Storage for PCB transformers	68units*2
Groundwater observation wells	114wells*2
Company on-site landfills	Closed

Product

Product weight (construction, mining and Industrial equipment)
805kt
Number of products (construction, mining and Industrial equipment)
47,948vehicles

Output

Waste	
Total amount generated	61kt
Substances under the Pollutant Release and Transfer Register (PRTR) Law	64t*2
(Waste furnaces	All removed)

Atmospheric Discharges	
CO_2	330kt-CO_2*5
SO_x	11t
NO_x	152t*2
Substances under the PRTR Law	387t*2

Noise and vibration

Waste Recycling	
Recycling amount	58kt

Hazardous waste manifests

Use in other industrial sectors

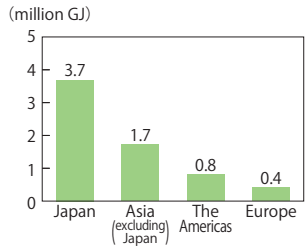
Waste Disposal	
Waste materials disposed by subcontractor	3kt
(Company on-site disposal of waste materials	0t)

Water-based Discharges	
Wastewater	2.7million m³*2
BOD emissions	6t*2
COD emissions	9t*2
Substances under the PRTR Law (public water areas)	0.0t*2
Substances under the PRTR Law (sewerage)	0.0t*2

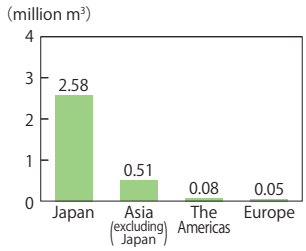
CO_2 emissions: Calculated by multiplying the electric power, heavy oil, etc. consumed (see Energy section of Input column) by the CO_2 emission coefficient (according to the Greenhouse Gas Emissions Calculation - Reporting Manual of the Ministry of the Environment based on the Act on Promotion of Global Warming Countermeasures) (Domestic electricity emission factor is 0.384kg/kWh.)
SOx emissions: Calculated by multiplying the "density" and the "S content by percentage" (based on element tables of suppliers) by the amounts of heavy oil, kerosene, light oil, and coke used.
NOx emissions: Calculated by multiplying the "nitrogen oxide emissions units" (obtained at each Komatsu facility) by the amounts of heavy oil, kerosene, light oil, natural gas, and LPG used.
Emissions and transfer of substances covered by the PRTR Law: Calculated by the "content ratio of specific chemical substances" contained in indirect materials multiplied by the "discharge or transfer rate." This calculation is based on the PRTR Law, which was designed to mandate the disclosure of the amount of specific chemical substances released into the environment to promote the management of such substances.

Environmental Impact Indicators by Region

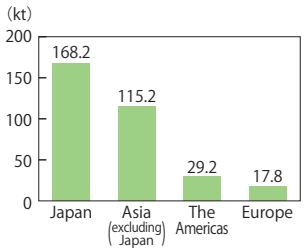
Energy



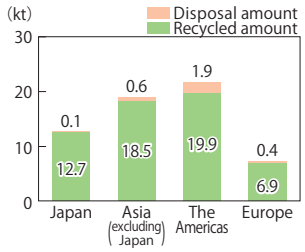
Water Resources



CO_2



Waste



Note:
Komatsu has begun to include parts of overseas data to the amount energy used and emissions by logistics.

Energy
Light oil 21,167kℓ

Packaging
Steel 1,409t*3
Resins 46t*3
Wood, cardboard 4,692t*3

Energy
Electricity 16.5GWh*4
Kerosene 600kℓ*4
etc.
Indirect Materials, Oils

Energy
Fuel
Indirect Materials, Oils

Energy
Fuel, electricity

Logistics (25 Komatsu Group Logistics Facilities in and outside Japan)

- CO_2 reductions in logistics
- Improvement of transport efficiency
- Improvement of packing materials

Sales and After-sales Services

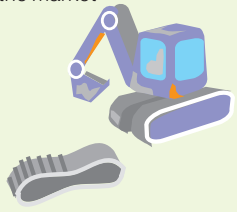
- Provision of environmentally-friendly products and services
- Creation and operation of atransaction network for usedcomponents (parts)

Use

- Reduction of environmental impact during the product usage stage
- Provision of solutions for customers' environmental activities
- Promotion of fuel-efficient operation

Recovery and Disassembly

- Promotion of "Reman," in which used components (parts) are recovered, remanufactured, and supplied back to the market



Atmospheric Discharges
CO_2 62.1kt-CO_2

Atmospheric Discharges
CO_2 8.5kt-CO_2*4

Atmospheric Discharges
CO_2 14,935kt-CO_2
NO_x, diesel particulate matter

Atmospheric Discharges
CO_2

Reuse of products
Reuse of parts

Recycling of materials (outsourcing)

Returnable pallets

Waste oil products

Recycling conducted at oil manufacturers

Noise and vibration

Use in other industrial sectors

Hazardous waste manifests

Waste disposal

Scope of energy and CO_2 data of logistics

- Komatsu (parent company) facilities, specifically the following fourteen plants
  The Awazu Plant, the Osaka Plant, the Rokko Plant, the Ibaraki Plant, the Tochigi Plant, the Kanazawa Plant, the Shonan Plant, the Oyama Plant, the Koriyama Plant, and Komatsu Logistics Corp (Parts Logistics Division) (The Kanto Parts Distribution Center, the Kansai Parts Distribution Center, the Awazu Parts Distribution Center, the Hokkaido Parts Distribution Center, the Kyusyu Parts Distribution Center).
- Komatsu Group manufacturing facilities in Japan, specifically the above fourteen plants and the following one business unit
  Komatsu Castex Ltd.
- Komatsu Group manufacturing facilities outside Japan, specifically the following ten plants
  Komatsu America Corp.,[Chattanooga Manufacturing Operation], [Peoria Manufacturing Operation], Komatsu do Brasil Ltda., Komatsu UK Ltd., Komatsu Mining Germany GmbH, Komatsu Shantui Construction Machinery Co., Ltd., Komatsu (Changzhou) Construction Machinery Corporation, Komatsu (Changzhou) Foundry Corp., Komatsu (Shandong) Construction Machinery Corp, PT Komatsu Indonesia Tbk, Bangkok Komatsu Co., Ltd..

Coverage of Data
*1: 8 Komatsu manufacturing facilities in Japan
*2: 12 Komatsu Group manufacturing facilities in Japan
*3: Logistics of business sites in Japan However, this excludes data from the Awazu Distribution Center, Hokkaido Parts Distribution Center, and Kyushu Parts Distribution Center
*4: Sales agencies and rental companies in Japan (Komatsu Construction Equipment Sales and Service Japan Ltd., Komatsu Rental Ltd. and Komatsu Forklift Japan Ltd.) were added
*5: Including the usage of forklifts in the premises of a factory

Organizational Chart of the Environmental Management Structure

Board of Directors

The highest executive body to consider top-priority matters and make decisions on management policies of the Komatsu Group.

President and CEO

Corporate level control division (Environmental Affairs Department)

: Person in charge of environmental management

- Research and development divisions
- Manufacturing divisions
- Sales and after-sales services divisions
- Business units
- Affiliated companies
- Manufacturing facilities outside Japan

Strategy Review Committee

The executive body to study and review basic policies, plans, and strategies, hold deliberations involved in top-priority corporate affairs, and present these to the Board of Directors. This committee consists of the standing executive directors.

Earth Environment Committee

This committee has ultimate authority for approving Komatsu' s environmental conservation measures. Its meetings are held biannually. Its mission includes formulating specific environmental action plans based on the Guidelines for Corporate Activity of the Komatsu Earth Environment Charter and determining Komatsu Group' s overall direction in environmental conservation. Chaired by an executive officer in charge of environmental management, it consists of executive officers responsible for individual divisions.

Development
- Development Meeting
  - Environment Technology Working Groups

Manufacturing
- Manufacturing Technology Meeting
  - Environment Management Personnel Liaison Council
  - Utility Sectional Committee
- Logistics Planning Meeting
  - Logistics Manager Liaison Council
- Manufacturing Facility Environment Management Committee
  - Environment Promotion Team

Procurement Division
- Procurement Meeting
  - Procurement Control Manager Meeting

Sales and after-sales service
- Komatsu Japanese Dealer Meeting
  - Liaison Council (After-sales service division in Japan)
  - Liaison Council (Rental division in Japan)

Affiliated Companies' Environmental Management Conference

Global Safety and Environmental Affairs Meeting

Chaired by an executive officer in charge of environmental management, this meeting is attended by officers responsible for safety and environmental management in Komatsu manufacturing facilities both in and outside Japan. Meeting every two years as a rule, it provides a platform to implement policies and measures formulated by the Earth Environment Committee and to exchange information related to environmental conservation worldwide.

Environmental Management Conference for Manufacturing Facilities outside Japan

Acquiring ISO14001

Komatsu has implemented a Group-wide initiative to acquire ISO14001 certification, an international standard for environmental management systems. The objective is to enhance management quality by strengthening systematic steps towards environmental conservation.

Since 1997, several manufacturing facilities both inside Japan and abroad received certification. In FY2005, the four plants belonging to Komatsu Ltd. (the parent company), the Awazu, Osaka, Mooka, and Oyama Plants, acquired integrated certification. As the second step, in FY2007 Komatsu added its major affiliates in Japan and yet-to-be-certified non-manufacturing facilities – notably the Head Office – to the above four plants, with integrated certification attained by the Group in Japan in May 2008.

Upon completing the March 2012 recertification, the KOMATSU Way Global Institute and Komatsu NTC Ltd. were included in the integrated certification. The Group conducted the recertification qualification again in March 2015, and will continue to work on improving the quality of management in Japan.

In FY2013 "Komatsu (Shandong) Construction Machinery Corp.", "Komatsu Manufacturing Rus. LLC", and "Hensley Lingfeng Co., Ltd (China)" acquired certification, and in FY2014 "Cabtec (Thailand)" acquired certification as well.

In FY2015, Yida Nippei Tool Corporation (YNC) also acquired certification and we were able to achieve the goal of having 100% of our overseas production facilities certified.

ISO14001 Integrated Certification

Environmental Inspection

Environmental Inspection of affiliate companies in Thailand

Since 2010, we have been conducting compliance risk inspections of our overseas affiliate companies.

In 2015, we conducted an inspection of BKC in Thailand. Komatsu's corporate headquarters department created a check sheet based on the local environmental laws, and with the support of the person in charge of environmental matters for the main plant(KCX) in Japan, we conducted an inspection of the conditions of environmental activities and the compliance to legal regulations. In this way, we are working to reduce the environmental risks and improve the level of the on-site person in charge of environmental issues and of the auditor.

Environmental Inspection at BKC

We will continue to do follow-ups to the inspection as well as conduct environmental inspections of affiliate companies in other regions.

Past Environment Inspections

2007	China
2008	—
2009	Thailand and Indonesia
2010	India
2011	Brazil
2012	Russia and Czech Republic
2013	United States
2014	United States and Brazil
2015	Thailand

Promoting Environmental Activities at Group Sales and Rental Agencies

Komatsu supports the environmental activities of forklift sales agencies as well as construction machinery and rental companies through education and guidance.

Environment Education for Dealer Association New Employee Education

The "Environmental Guidelines for Sales Agencies" deployed for sales and rental agencies comprises of guidelines and standards pertaining to environmental issues that are of direct relevance to operations at sales agencies and rental companies (such as waste treatment, waste-oil treatment, oil-and-grease management, and treatment of wastewater from vehicle washing).

Komatsu works jointly with their counterparts at various companies by visiting the sites of various sales agencies and rental companies to ensure compliance with the "Environmental Guidelines for Sales Agencies" as well as inspecting sites, realities, and actual products to implement support activities such as supervising the sites and proposing remedial actions that are tailored to each location (implemented at a total of 57 locations in FY2015). Also, the "Safety and Environment Newsletter", published for the purpose of providing information related to environment for sales agencies and rental companies, reached its 10th anniversary of publication in 2015 (first issue released in November 2005) and has been effective in raising awareness levels at the sales points.

Furthermore, we are implementing a waste management system at the sales agencies in order to promote appropriate management of industrial waste. In addition to management of the electronic manifest, by managing disposal service contract and permits in a unified system, we are working on decreasing the number of man-hours used, as well as providing a centralized, effective waste management.

Komatsu Construction Equipment Sales has already put the system in place, and we are planning to gradually introduce this system in the other sales and rental agencies.

As a result of the above activities, environmental awareness is higher at sales agencies and rental companies, leading to various improvement activities.

Setting Mid- and Long-Term Objectives

While long-term objectives for CO_2 reduction was being set for the world at COP21 in 2015, in order to contribute to the climate change measures as Komatsu, we set medium- and long-term objectives (2020, 2030) and determined to begin in FY2016 to take action based on these objectives.

In looking at CO_2 generated in the life cycle of construction equipment products, we found that CO_2 emissions during construction equipment use makes up approximately 90% of total emissions. Therefore, this time we are working on reducing CO_2 emissions over the entire life cycle of construction equipment, and have set fuel efficiency goals for construction equipment products that are to be achieved by 2030.

In terms of CO_2 reduction for domestic production—considering the electricity situation that resulted from the Great Eastern Japan Earthquake in 2011—we have set increasingly stringent objectives. Also, for production, in addition to the targets set for CO_2 reduction, we set targets for our domestic and overseas factories regarding the amounts of waste generated and the amounts of water input, in order to promote efficient use of resources. And we set medium-term targets up to 2030 for CO_2 in logistics.

Area	Object	Application	Index	Base Year	New Objectives (Reduction Rate)	
					2020年	2030年
Production	CO_2	Japan	Improvement rate per unit of production	2000	57%	65%
		Overseas	Improvement rate per unit of production	2010	32%	40%
	Waste	Japan	Improvement rate per unit of production	2010	10%	20%
		Overseas	Improvement rate per unit of production	2010	10%	20%
	Water	Japan	Improvement rate per unit of production	2010	40%	50%
		Overseas	Improvement rate per unit of production	2010	10%	20%
Logistics	CO_2	Japan	Improvement rate per unit of logistics	2006	32%	39%
		Overseas	Improvement rate per unit of logistics	2011	13%	22%
Construction Machinery Products	CO_2	Hybrid Hydraulic Excavator	Fuel Consumption Reduction Rate	2007	40%	45%
		Normal Hydraulic Excavator (non-hybrid)			20%	25%

Amount of CO_2 Emmissions by Scope 3

From actual data gathered by KOMTRAX, Komatsu has gained perspective on the amount of CO_2 emissions (Scope 3 Category 11) produced by our products manufactured in FY2015 in operation world-wide.

The calculation was performed as follows.

[Calculation of Emissions from Customer Use]

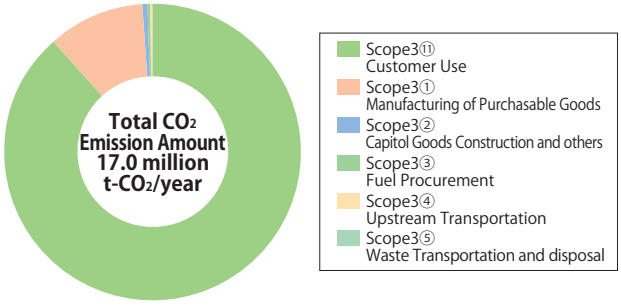
(1) Calculate the following by each model

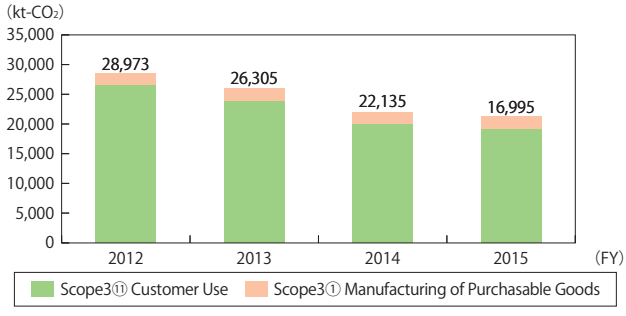
CO_2 emissions over the life of each model
= (FY2015 Production Volume)×(Fuel Consumption; L/kWh)
× (Engine Output; kW)
× (Engine Life; as product life; h)
× (CO_2 Conversion Factor)

(2) Calculated for each model in (1) above, Total these values

*For models available to collect fuel consumption, KOMTRAX collected the actual values of fuel consumption and operating time from representative models of each size. We back calculated data from development for other models.

For others, including the 14 remaining categories, the general CO_2 emissions was calculated. The result is shown in the pie chart below.





*1: LCA is the environmental impact assessment method for individual products at each stage, from manufacture, transportation, sale, use, disposal, to reuse
*2: Scope1 is direct CO_2 emissions by operator (ex: private power generation)
*3: Scope2 is indirect CO_2 emissions by operator (ex: power purchase)
*4: Scope3 is CO_2 emissions by operator from supply chain (ex: emissions of product during operation, emissions from suppliers, transportation, business trips and commuting)

Amount of CO_2 Emissions Data by Scope 3

Category	Rate (%)	Summary Date (t-CO_2)
Scope3 (11) Customer Use	87.9	14,935
Scope3 (1) Manufacturing of Purchasable Goods	10.3	1,749
Scope3 (2) Capital Goods Construction and others	0.6	101
Scope3 (3) Fuel Procurement	0.4	71
Scope3 (4) Upstream Transportation disposal	0.1	15
Scope3 (5) Waste Transportation	0.0	6
Scope3 (6) Business Trips	0.2	26
Scope3 (7) Commuting	0.1	17
Scope3 (8) Upstream Leased Assets Operation	0.0	0
Scope3 (9) Downstream Transportation	0.2	37
Scope3 (10) Processing Sold Products	0.0	0
Scope3 (12) Product disposal	0.2	39
Scope3 (13) Downstream Leased Assets Operation	—	—
Scope3 (14) Franchise Member Companies	0.0	0
Scope3 (15) Investment Management	0.0	0
Total CO_2 Emission Amount (t-CO_2/year)	100.0	16,995

- Although it is calculating in the total range of domestic and an overseas in calculation of each category, the category (4) and (5) is calculating only domestic data. The category (13) is included in category (11). Moreover, presumption of a category (3) goes into overseas data in part.

As evident from the results above, emissions during product use makes up approximately 90% of total emissions.

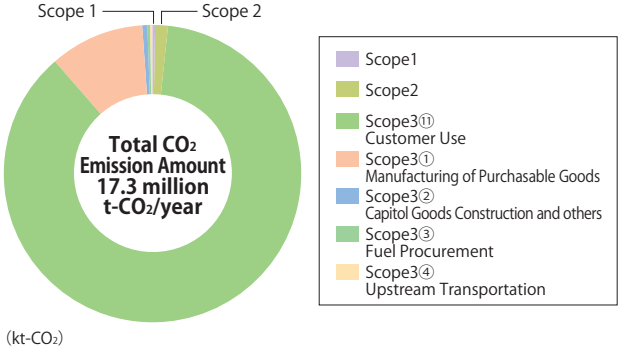
From this, we can see that fuel-efficient products have a significant effect on reducing CO_2 emissions.

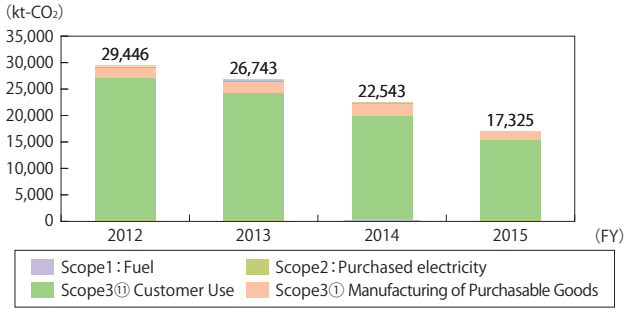
Komatsu is committed to developing hybrid construction machinery (improving fuel efficiency by 25%) and DANTOTSU products (over 10% improvement in fuel efficiency) and accelerating the pace of the ICT-based SMART CONSTRUCTION.

In addition, the result of the understanding in the LCA*1 (Life Cycle Assessment) is the pie chart below.

≪Reference≫

Pie Chart of Scope1, 2, 3





Mitigating Climate Change

Mitigating Climate Change through Products and Services

Tier4 Final Compliant Models Released

In 2015, Komatsu released one vehicle model after another that greatly reduce nitrogen oxide (NOx) and particulate matter (PM) emissions that meet Japanese (Emissions from Non-Road Special Motor Vehicles 2014 Standards), North American (EPA Tier4 Final), and European (EU Stage IV) emissions controls for Hydraulic Excavators, Bulldozers and Wheel Loaders. These models are equipped with newly developed next-generation engines that result in construction machinery that are clean and fuel efficient, with excellent durability and reliability.

Below are some examples.

Large-Sized Hydraulic Excavator "PC300(LC)-11/PC350(LC)-11"

With "Quality and Reliability" as the foundation, Komatsu has pursued ever higher levels of quality in environmental, safety and ICT aspects, and released the "PC300(LC)-11/PC350(LC)-11" model to the market, which meets the Non-Road Special Vehicles 2014 Standards. Equipped with the newly developed next-generation engine, this model makes further advances in being clean and efficient.

Fuel consumption rate has been decreased by approximately 5% compared to the previous model(PC300-10).

PC300-11

Main Specifications

Item	Unit	PC300-11	PC300LC-11	PC350-11	PC350LC-11
Machine Mass	kg	31,500	32,300	33,700	34,500
Net Engine Rated Output	kW/min^{-1}	192/1950	192/1950	192/1950	192/1950

Hybrid Hydraulic Excavator "HB335(LC)-3/HB365(LC)-3"

For the Hybrid Hydraulic Excavator, the "HB335(LC)-3/HB365(LC)-3" was released as the model which meets the Non-Road Special Vehicle Standards 2014. By using the Fan-Clutch System and a total computerized control of the engine/hydraulic/hybrid system, we were able to achieve a large reduction in fuel consumption of approximately 22% compared to the conventional model (PC300-10), without compromising any operational capabilities.

HB335-3

Main Specifications

Item	Unit	HB335-3	HB335LC-3	HB365-3	HB365LC-3
Machine Mass	kg	32,000	32,800	34,200	35,000
Net Engine Rated Output	kW/min^{-1}	201/1950	201/1950	201/1950	201/1950

Bulldozer "D85EX/PX-18"

By incorporating the Komatsu Diesel Particulate Filter (KDPF) and Selective Catalytic Reduction (SCR), the D85EX-18 significantly reduced the emission of nitrogen oxide (NOx) and particulate matter (PM) to meet the North American EPA Exhaust Emission Tier4 Final Regulations (Tier4 Final), the European Stage IV Exhaust Emission Regulations, and Japan's Emissions from Non-Road Special Motor Vehicles 2014 Standards.

With the Sigmadozer, operation volume went up by 15% and fuel efficiency increased by 20% through the 5% fuel improvement of the automatic shift transmission and engine.

D85EX-18 Sigmadozer

Main Specifications

Item	Unit	D85-18(North America Specifications)
Machine Mass	kg	30,120(EX)/28,550(PX)
Net Engine Rated Output	kW/min^{-1}	197/1900

Wheel Loader "WA380-8" *1

The WA380-8, by incorporating the Komatsu Diesel Particulate Filter (KDPF) and Selective Catalytic Reduction (SCR), significantly reduced the emission of nitrogen oxide (NOx) and particulate matter (PM) to meet the North American EPA Exhaust Emission Tier4 Final Regulations (Tier4 Final), the European Stage IV Exhaust Emission Regulations, and Japan's Emissions from Non-Road Special Motor Vehicles 2014 Standards.

Fuel consumption rate decreased by approximately 3% compared to the previous model.

WA380-8

*1: For North America, Europe, and Japan

Main Specifications

Item	Unit	WA380-8(North America Specifications)
Machine Mass	kg	18,455
Net Engine Rated Output	kW/min^{-1}	142/2100

The ICT Construction Equipment Expansion Series

The SMART CONSTRUCTION initiative unveiled in January 2015 makes use of ICT (Information Communication Technology) for automatic control of the bulldozer's blade or for semi automatic control of the hydraulic excavator by measuring terrain data and comparing 3D design data with information on the operating equipment's location. This dramatically improves the efficiency of construction, which results in reducing the fuel consumption of construction (decrease in CO_2 emissions). In-house testing results show a decrease in fuel consumption of approximately 30% for the ICT Hydraulic Excavator "PC200i-10" and approximately 25% for the ICT Bulldozer "D61PXi -23".

The representative models of ICT construction equipment to be used in the SMART CONSTRUCTION initiative unveiled in 2015 as follows.

ICT Hydraulic Excavator "PC128USi-10" *1

This machine is an ICT Hydraulic Excavator series expansion model which follows the Medium-sized ICT Hydraulic Excavator "PC200i-10" introduced in October 2014.

This excavator is like the "US Series" hydraulic excavator with rearward minimum-swing-radius, mounted with the same ICT components as the "PC200i-10," and will be the main machine to introduce computer-aided construction to a broad range of construction sites such as road construction for small-scale developments, plumbing construction, and small-scale land development construction.

*1: For Japan (Introduction starting from Komatsu Rental and Komatsu Group's rental companies.)

PC128USi-10

Main Specifications

Item	Unit	PC128USi-10
Machine Mass	kg	13,300
Net Engine Rated Output	kW/min^{-1}	69.7/2050

Bulldozer "D65PXi-18"

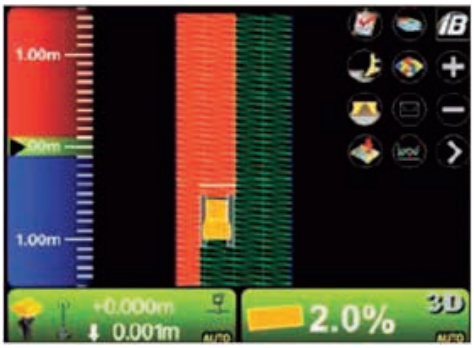
The D65PXi-18, by incorporating the Komatsu Diesel Particulate Filter (KDPF) and the Selective Catalytic Reduction (SCR), significantly reduced the emission of nitrogen oxide (NOx) and particulate matter (PM) to meet the North American EPA Exhaust Emission Tier4 Final Regulations (Tier4 Final), the European Stage IV Exhaust Emission Regulations, and Japan's Emissions from Non-Road Special Motor Vehicles 2014 Standards.

By combining cutting edge ICT and vehicle control technology, this model is equipped with both the automatic blade control for heavy excavation and land preparation work, and the mapping display capabilities to verify the work progress.

D65PXi-18

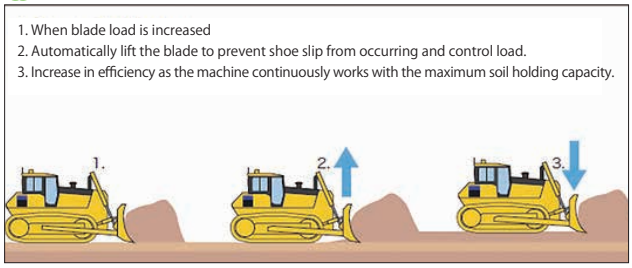
Main Specifications

Item	Unit	D65PXi-18(North America Specifications)
Machine Mass	kg	22,600
Net Engine Rated Output	kW/min^{-1}	162/1950



Monitor displaying work conditions

Automatic Blade Control



New Model Battery-Powered Forklift Expansion Series "FE30-1"

The "FE25-1", which was introduced to the market in January 2014, is an innovative battery-powered forklift that combines engine-powered forklift equivalent outdoor capacity (waterproof and dust-proof qualities) and ease of use (rehydration is unnecessary and it has rapid recharging capabilities, recharging up to 80% over a one-hour lunch break) with the environment-friendliness and economy of a battery-powered forklift.

As an expansion of this series, the "FE30-1" was released in September 2015. This model, with 1/3 the CO_2 emission rate*1 compared to the previous diesel engine powered forklift, will greatly contribute to CO_2 reduction. In addition, KOMTRAX "makes visible" the battery charge progress and the electricity consumption, while the large-size color multi-monitor makes it possible to check environment related information such as the amount of electrical charge and the cumulative amount of CO_2 emissions*2.

*1: Comparison with Komatsu's 3t Diesel Engine Powered Forklift based on in-house calculations.
*2: Cumulative amount of CO_2 emissions was calculated using emission coefficient set for conversion.


FE30-1

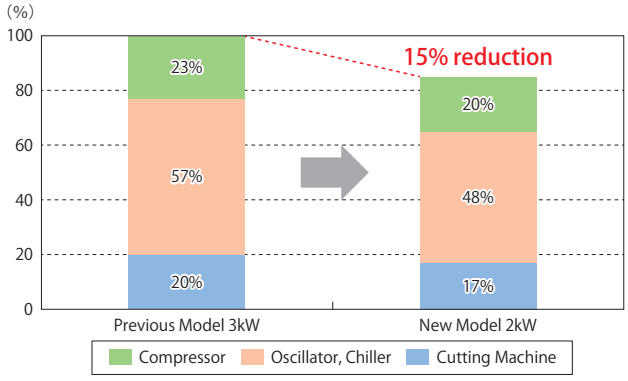
Market Introduction of the 3D Laser Cutting Machine "TLH-K Series"

Komatsu Industries Corporation developed the three dimensional laser cutting machine "TKH-K Series" with improved productivity and energy efficiency. By equipping this machine with the Komatsu Fiber Laser Oscillator having high quality laser beam, it has become possible to achieve a productivity rate with 2kW that is equivalent to previous 3kW rates, which helps users conserve energy.

We will continue with product development of laser cutting machines that take the environment into consideration.

TLH-415K30FK

Reduction in electricity consumption for cutting (Hot-press Material sheet thickness: 1.2mm, Cutting Speed: 27m/min)



Gas Consumption Reducing Technology of Excimer Laser for Semiconductor Lithography Equipment

GIGAPHOTON, Inc., a major manufacturer of light source for semiconductor lithography equipment, is continuously working on finding a solution to the supply shortage of rare gases such as neon and helium, a serious concern for the semiconductor industry.

First, as a solution for neon gas, GIGAPHOTON Inc. developed "eTGM", a technology capable of reducing neon gas consumption by 50%.

Next, as a solution for helium gas, GIGAPHOTON, Inc. developed "helium-free" technology which will eliminate the consumption of helium during operation by replacing helium with nitrogen.


Latest excimer laser GT64A

Initiatives to Mitigate Climate Change in Business Operations

Reducing CO_2 Emissions in Manufacturing Operations

As a part of our efforts to mitigate climate change, Komatsu set more aggressive objectives in FY2013 for the amount of electricity, fuel gas, fuel oil, and other types of energy used in manufacturing operations, using CO_2 emissions per unit of manufacturing value as the indicator.

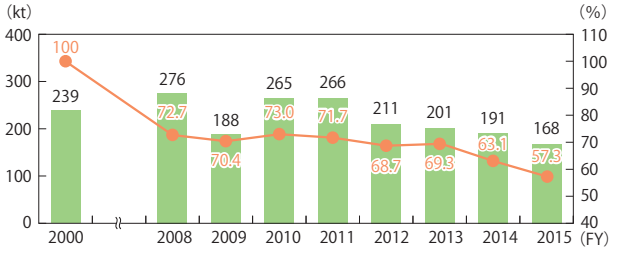
In 2010, to contribute to Post Kyoto Protocol climate change measures, we set a goal that by 2015 we would reduce CO_2 emission levels by 40% compared to the levels in 1990. Since then however, in light of the electricity supply crunch that followed the Great East Japan Earthquake, activities to further reduce power consumption were started with an ambitious goal of a 54% reduction compared to FY2000 levels.

As a result of the energy-saving activities undertaken—such as the establishment and start of high efficiency lines and removal of old lines, along with the use of renewable energy and the popularization of various production improvements revolving around the "Company-wide Power Reduction Project Team" established in May 2012—the indicator of CO_2 emissions per unit of manufacturing value was reduced by 42.7% compared to FY2000 levels. In addition, the ratio of renewable energy for in-house power generation was 13.4%, an increase of 1.3 times the previous year's amount.

CO_2 emission at Komatsu's overseas manufacturing sites have also been reduced by 33.2% compared to FY2005 as a result of fuel conversion and lateral spread of improvement examples from Japanese plants.

From FY2016, aiming for the achievement of new mid-term goals, we will promote the reduction in CO_2 emissions index numbers by updating buildings that are over 40 years old to buildings that incorporate the newest energy-conserving technology, and by making small but steady improvements on job sites.

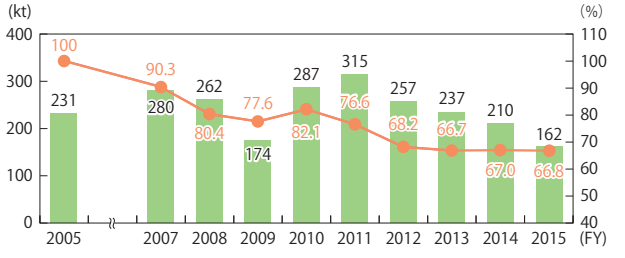
CO_2 emissions (Japan)



Manufacturing value : Total production cost excluding direct material cost, other facilities' components, and procured components

Total amount of CO_2 emissions of all Komatsu Group manufacturing facilities in Japan
CO_2 emission index per unit of manufacturing value at Komatsu Group manufacturing facilities in Japan (compared to FY2000)

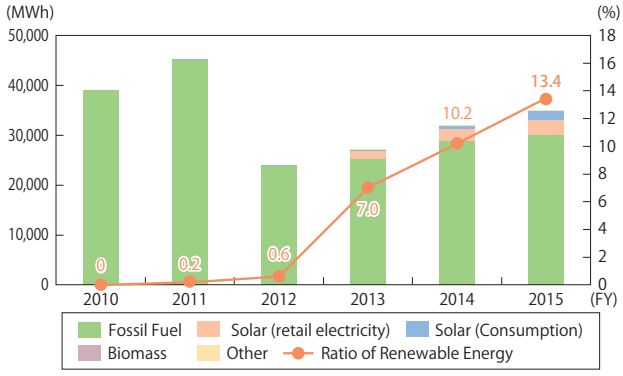
CO_2 Emissions (Overseas)



Basic unit : CO_2 emission Index per unit of manufacturing value at each manufacturing facilities, weighted by ratio of manufacturing value of each site. (compared to FY2005)

CO_2 emissions (Komatsu Group manufacturing overseas facilities)
CO_2 emission basic unit (compared to FY2005)

Proportion of renewable energy for electricity self-generation



Halving Electricity Usage Project

Halving Electricity Usage Project

As part of its continuing effort to reduce environmental burdens by cutting CO_2 emissions, Komatsu has decided to accelerate its pace of power usage reduction by boosting productivity drastically in anticipation of lingering nationwide power shortages in 2012 and after since their outbreaks in the service areas of Tokyo Electric Power Company, Inc. and Tohoku Electric Power Company, Inc. in the wake of the Great East Japan Earthquake in 2011.

Based on the in-depth analysis of electricity usage status since then, Komatsu's own domestic manufacturing facilities have worked towards achieving its new goal of cutting the peak power usage by 50% compared to its summer 2010 level to reduce environmental burdens.

Conceptual Approaches to Reducing Electricity Usage

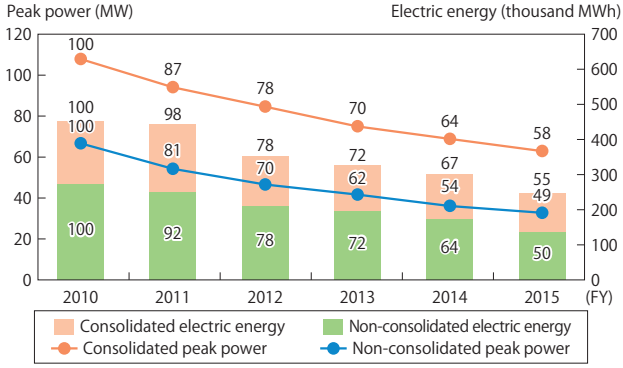
Komatsu is committed to three basic concepts of reducing electricity usage as follows:

(1) Visualize electricity usage to eliminate waste
(2) Production reform
(3) Use alternative energy sources

(1) Activity Results (Domestic Manufacturing Facilities)

In addition to the peak power usage, we were also able to achieve Komatsu's own target of 50% reduction in electricity usage. Going forward, we will continue with these types of activities, as well as pursue further actions that will lead to even more electricity usage reduction.

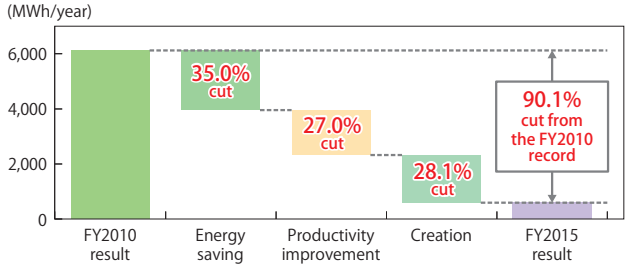
Electricity usage change forecasts



(2) Status of electricity usage reductions at a new assembly shop at Awazu Plant

With impetus mainly from a full launch of biomass power generation scheduled for FY2015, electricity usage reductions at a new assembly shop at Awazu Plant commissioned into service in 2014 was reduced by over 90% as planned.

Saving in electricity purchases at the new assembly plant (in terms of the FY2010 output)



Reduction CO_2 Emissions in Logistics

Lower CO_2 Emissions for Global Transport (Basic Unit of CO_2 Emissions per Cargo Weight: kg-CO_2/ton)

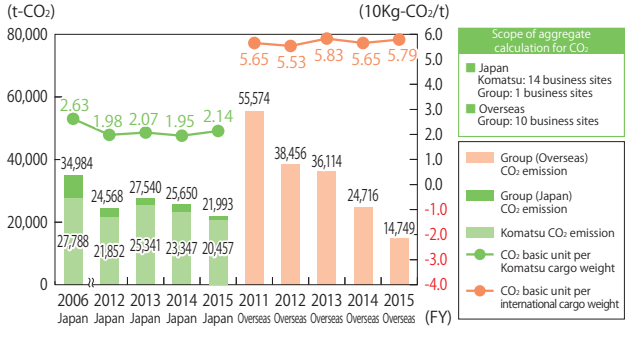
In 2011, Komatsu began improving its assessment of CO_2 emissions from logistics operations for its 10 major international business locations.

Combined with the improvements that were started in domestic locations from 2006, we have now implemented improvements in logistic operations on a globally consolidated basis at all 25 business locations.

Domestic improvements include decreasing transportation distance through efficient use of the Kanazawa and Hitachi Naka Ports, and the expansion of coastal shipping to handle the long distance transport to the Tohoku area, which has been increasing since 2011. From FY2014, the expansion of railway use has been added to priority action items to improve the modal shift trend. As a result of continuing these initiatives in FY2015, we achieved a 2.6% improvement in basic units compared to the previous year. However, domestic CO_2 emissions basic units worsened by 9.4% overall, largely due to an increase in average transport distance resulting from the decrease in overseas export loads and large model loads, as well as the basic unit fluctuation affected by the decrease in logistics efficiency.

In overseas, the U.S. alone showed a 1.5% improvements in logistics efficiency in basic units compared to the previous year, while the overall overseas results showed basic units of CO_2 emissions deteriorating by 2.5%, being greatly affected by the load reduction due to the major production decrease in China and Asia.

Global Shipment CO_2 Emissions Volume and CO_2 Emissions Per Cargo Weight



CO_2 Improvement for Domestic Transport (Increase in Coastal Port Usage Rate)

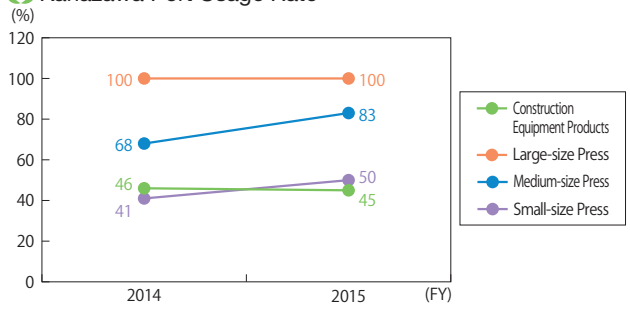
(1) Increase in Kanazawa Port Usage Rate (Condition of Press Products)

In order to decrease domestic land transport distance, we are working on improving the usage rate of the local port—Kanazawa Port—for export products produced at the Awazu and Kanazawa plants in the Hokuriku district.

In addition to the usual construction equipment products produced at the Awazu plant, from FY2014, the press products produced at the Kanazawa plant are also being managed and improved by using the Kanazawa Port usage rate as an index.

In FY2015, the Kanazawa Port usage rate for press products was greatly improved.

Kanazawa Port Usage Rate

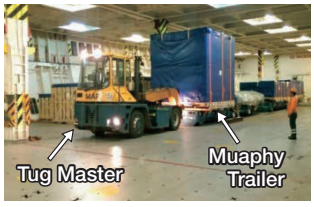


[Main Improvements]

1) Medium-size Press: Use of RORO ships
2) Large-size/Medium-size Press: Use of conventional ship charter by combining loads
3) In September 2015, the full operation of Murphy Service started for the first time on the Japan Sea side of Honshu, and also for the first time a large-size RORO ship called at Kanazawa port. This meant that if the right load size could be arranged, a large-size RORO ships could be used instead of the conventional ships.

(At the first time port call of the large-size RORO ship 1,700 tons of Komatsu's large-size press was sent out to North America and Mexico.)

Press Units being loaded onboard



Loading onboard

(2) Effects of the Kanazawa Port Usage Rate Improving (compared to FY2014)

1) Reduction in land transport by truck trailer shipment: 350km/trip (compared to use of Kobe Port)
2) Improvement in Basic Unit of CO_2 Emissions per Cargo Weight (kg-CO_2/ton): 5.9⇒4.4 (△24.5%)
3) Reduction in Total CO_2: △25 (t-CO_2/year)

CO_2 Improvement in Overseas Transport (Use of Natural Gas Truck/Trailer)

At BKC(Thailand), a part of Komatsu's overseas group companies, the use of low environmental impact transport vehicles called NGVs (Natural Gas Vehicle) has become increasingly pervasive, with the NGV usage rate increasing to 51.1%. The resulting CO_2 reduction has reached 282t-CO_2 cumulatively (FY2012 ~ FY2015).

NGV Truck (Natural Gas Vehicle)

Promoting Recycling

Promoting the Reman Remanufacturing Business

In our Reman business, the Komatsu Group remanufactures used engines, transmissions, and other key components (parts) of construction and mining equipment into "remanned" components that have the same high quality as newly manufactured components. We then put these components back on the market. The Group is promoting the Reman business at 12 Reman Centers around the world.

Promoting the Reman Business to the World

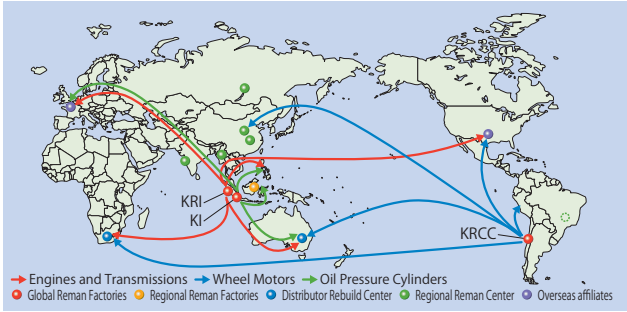
Reman, an abbreviation for remanufacturing, offers the following advantages to customers:

- Quality and performance that is the same as new components
- Lower cost for "remanned" components
- Reduced idle time for construction equipment because of adequate inventory of "remanned" components
- Resource conservation and waste reduction through reuse and recycling of components.

As the global center, Komatsu established PT Komatsu Reman Indonesia (KRI), which supplies parts, such as engines and transmissions for large-size construction machinery, and PT Komatsu Indonesia (KI), which supplies hydraulic cylinders. Komatsu also established another global center, Komatsu Reman Center Chile (KRCC), which provides components for electric dump trucks.

Additionally, Komatsu established PT KOMATSU REMANUFACTURING ASIA (KRA) in Indonesia to recycle all components of large-size construction machinery exclusively for the Indonesian market. For countries that are not part of our global supply chains (China, Russia, India and Brazil), we have established individual Reman Centers, and in April 2015 the 12th Reman Center was established in Myanmar.

The Myanmar (KMM) Reman Center established in April 2015



Reman Factories and Centers map

Providing Reman-related Information

The Komatsu Group has set up "Reman-Net" as a network for Komatsu Reman Centers around the world. The Group is actively using this network to develop Reman operations for reuse and recycling of components at the global level.

IC tags and two-dimensional bar codes are used to manage each item's remanufacturing history, and to track quality and durability information. This important information is reported to the Group, to help develop components with optimal service life.

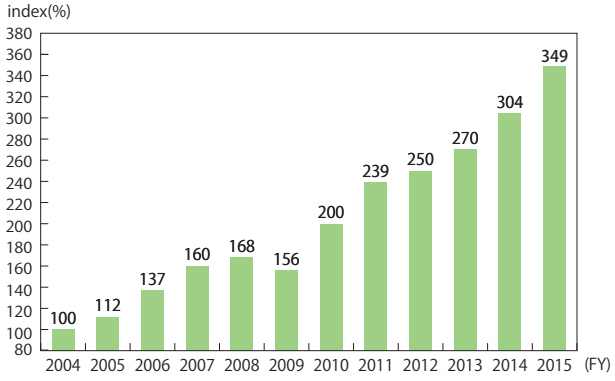
Future Steps

To further increase the reuse rate of used components, the Komatsu Group is reducing the number of disposed parts by:

- Developing parts for remanufacturing, oversized parts, etc
- Developing recycling-related technologies (assessment and measurement for reuse, remanufacturing worn-out parts, cleaning, heat treatment, etc.)

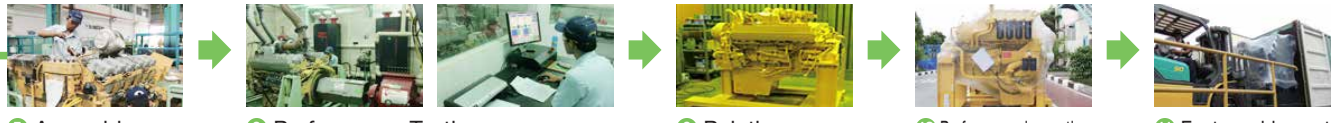
to reduce waste components, and thereby further increase reuse and recycling activities.

Changes in Reman Sales (base FY2004 = 100)



Reman Process

1 Inspection upon receipt
2 High-pressure cleaning
3 Disassembly
4 Component inspection
5 Component cleaning
6 Component remanufacturing



7 Assembly
8 Performance Testing
9 Painting
10 Performance inspection
11 Factory shipment

Effective Utilization of Resources in Manufacturing Operations (Waste)

In tandem with reducing the amount of waste produced during manufacturing operations, Komatsu is working on "zero emissions" activities, which is the use of waste materials as resources. Starting in FY2011, we set new mid-term goals for the recycling rate and for the amount of waste generated per unit in the manufacturing operations in Japan, and we are working toward those goals.

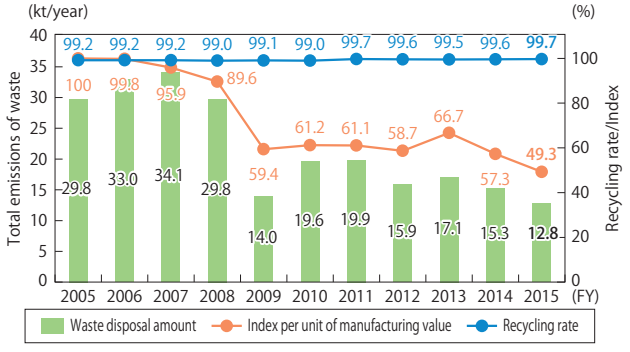
For the manufacturing operations in Japan, the definition of "zero emissions" was set at a target recycling rate of above 99.5% to raise the level of recycling. The recycling rate for the manufacturing operations in Japan for FY2015 was 99.7%, achieving the goal (over 99.5%) ahead of schedule for 5 years in a row.

Also, in terms of the recycling rate, the overseas manufacturing facilities have also set a mid-term goal of a target rate of over 95%, and have been promoting the effective utilization of waste materials. The recycle rate for overseas manufacturing facilities has increased up to 93.7% in FY2015.

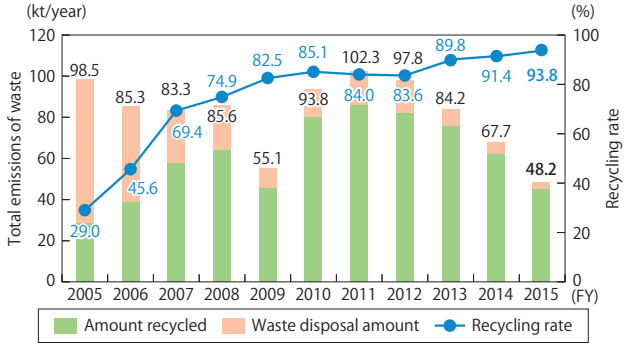
For the manufacturing operation in Japan, Komatsu decided to reduce the amount of waste materials generated per unit of manufacturing value in FY2015 by over 20%, compared to the FY2005 level. As a result of strict adherence to the separation of waste materials and increased conversion of waste materials to resources, the amount of waste materials generated per unit has been reduced by 50.7% compared to the FY2005 level. Starting in FY2016, a goal has also been set for the amount of waste materials generated per unit of manufacturing value for overseas manufacturing facilities.

This year, Komatsu will strive to be even more thorough in adhering to the waste materials separation policy and promote activities that will help achieve its mid-term goals.

Amount of Waste Generated (Data coverage: Komatsu Ltd. and the Komatsu Group manufacturing facilities in Japan)



Amount of Waste Generated (Data coverage: The Komatsu Group manufacturing facilities in overseas)



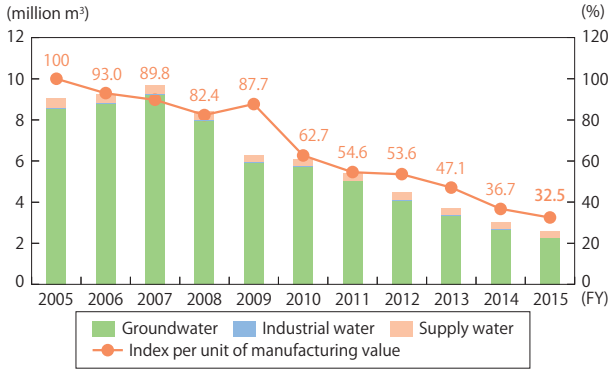
Effective Utilization of Resources in Manufacturing Operations (Water Resources)

In FY2014, Komatsu set a new medium-term target of achieving "a 50% or greater reduction in the amount of water used per unit of manufacturing by FY2015, compared to the FY2005 level". An effort has been made to save the consumption of underground water at Komatsu facilities located in the Hokuriku District, which are major users of underground water. The Company has achieved reductions in the amount of water used per unit of manufacturing by 67.5% compared to the FY2005 level, through the reuse of water during processing and the elimination of wasteful day-to-day practices.

In particular, Komatsu Cabtec Co., Ltd. eliminated its groundwater consumption—which was used for cooling—by installing a chiller in every facility.

Komatsu will continue efforts to save water resources to achieve its medium-term goals.

Amount of Water Resources Used and Index Per Units of Manufacturing Value (Data coverage: Komatsu Ltd. and the Komatsu Group manufacturing facilities in Japan)



TOPICS

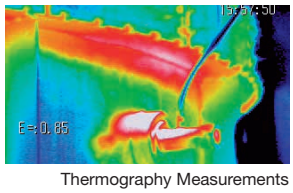
Receiving the Energy Conservation Award (Energy Conservation Case Category) "Chairman Prize of ECCJ"

Komatsu Defense Systems Division was awarded the 2015 Energy Conservation Award (Energy Conservation Case Category) Chairman Prize of Energy Conservation Center, Japan (ECCJ) sponsored by the ECCJ.

The Energy Conservation Award is awarded once a year for the purpose of contributing to the spreading of energy conservation consciousness, promoting the use of energy conserving products, development of energy conserving industries and the building of an energy conserving society. This was the first time Komatsu won this award.

The theme of this year's award was "Improving energy conservation of electrical forge furnaces in forge plants by super-insulation". By super-insulating the electrical heating furnace used in the hot forging process, the consumption of electricity was reduced by 23% (reduction amount 590Mwh). By using a thermograph to accurately identify the heat dissipation points of the furnace wall and by working with the laminate structure of the insulation materials, the insulating capabilities were significantly increased to efficiently achieve a large decrease in electricity consumption.

We aim to work towards ever higher levels of achievement by continuously making improvements in the field.



Thermography Measurements

Award Ceremony

Biodiversity

Initiatives that Deal with Biodiversity

Komatsu will maintain our commitment to protecting biodiversity in our business activities, recognizing the impact of those activities on the ecosystem.

Initiatives that Deal with Biodiversity

With the establishment of Komatsu's "Declaration of Biodiversity" and "Biodiversity Guideline" in January 2011, Komatsu business units worldwide began activities designed to preserve biodiversity.

Komatsu promotes initiatives to preserve biodiversity on two levels.

First, the Company continues to promote ongoing efforts to reduce the environmental impact of Komatsu's business activities. Komatsu also considers biodiversity when deciding how land is to be used, such as when building factories.

Second, Komatsu is becoming directly involved in the preservation of biodiversity, and at the same time expanding our "one-site, one-theme activities" to raise employee's awareness of the need to preserve local ecosystems.

Initiatives of Each Business Facility

Komatsu Osaka Plant: "Osaka Biodiversity Partner Agreement"

On March 15, 2016, the Osaka Plant—one of Komatsu's major domestic plants—entered into the "Osaka Biodiversity Partner Agreement" with Osaka Prefecture, Osaka Prefecture University, Osaka Prefecture Research Institute of Environment, Agriculture and Fisheries, and Hirakata City.

Based on this agreement, each partner takes a role in promoting the building of an ecological network through the management of the green space within the Osaka Plant premises (Komatsu Satoyama) that takes biodiversity into consideration. Furthermore, by using it (Komatsu Satoyama) as a field for nature observation groups for citizens, a ripple effect of contributing to the community and increased awareness of biodiversity can be expected.

The "Komatsu Satoyama" of Osaka Plant is 1,500 m^2 and is made up of a biotope pond and a community forest where Pin Oak and Sawtooth Oak trees that were planted when plant construction was completed grow tall above the forest floor. There are also rare species of aquatic plants growing in the pond and the number of spot-billed ducks is increasing every year.

Osaka Plant "Komatsu Satoyama"
Photograph by Teruyoshi Fukuzawa

Initiatives for Biodiversity in Logistics (Reduction in wood and cardboard packing materials (domestic))

When biodiversity was added to the Komatsu Earth Environment Charter in 2010, the logistics department started improvement activities, with the reduction of wood and cardboard packing materials being the main focus, based on the perspective of forestry conservation.

FY2015 Improvement Target: Basic unit of packing material used per cargo weight (kg/ton) Compared to FY2010 △10%

By making improvements such as using returnable palettes, changing materials, and simplifying/eliminating packing materials—with a particular emphasis on improving the packaging of supplementary parts and Osaka Plant's CKD parts for which large amounts of packing materials had been used—the FY2015 target was reached in the second year from when the activities were initiated from FY2011. And, by continuing with improvements since then, the following results were achieved.

〈FY2010 - FY2015 Activities Results〉

- **Basic Unit of Packing Material Used per Cargo Weight (kg/ton)**
  Compared to FY2010 △24.8 %
- **Amount of Wood/Cardboard Used**
  FY2010 - FY2015 Cumulative Total △1,978tons

The amount of wooden packing materials reduced when converted to cedar trees (tree age 50) is equivalent to 4,457 trees*1.

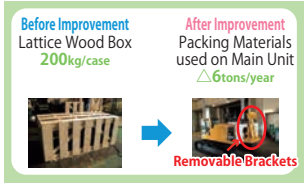
From the forestry conservation perspective, we kept 4,457 trees from being cut down. Also, the amount of CO_2 absorption converted to cedar trees is 62 (t-CO_2/year)*2.

*1: One 50 year-old cedar tree weighs approximately 0.444 tons.
*2: Amount of carbon absorption by one 50 year-old cedar tree is approximately 14kg/year

- **Improvement Status of Returnables**
  ・Returnable use rate for spare parts' packing cases: 46% improvement (compared to FY2010)
  ・Returnable use rate for CKD packing (all-purpose) cases: 22% improvement (compared to FY2010)

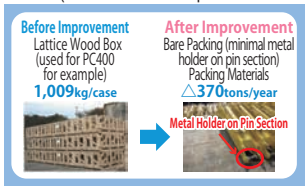
〈Improvement Example of Wooden Packing Materials Elimination〉

(1) PC650 For North America: Removable Brackets Attached to Main Unit (abolition of separate packaging)



(2) Spare Parts: Elimination of wooden packing materials by using returnable palettes
21% improvement (compared to FY2012) in FY2013 on using returnables for spare parts

(3) PC200-PC400: Boom packing abolished/simplified (all areas except Russia and Africa)



Environmental Risk Management

Promoting Legal Compliance, and Pollution Mitigation and Prevention

Komatsu Group companies periodically report and archive environmental measurement results, in accordance with applicable laws and regulations of national and local authorities. In FY2015, there was a minor infraction regarding the environment (temporarily exceeding the standard for water quality and failure to report certain facilities), but it has been resolved and currently there are no compliance breaches.

No major accidents or legal violations occurred that would threaten environmental contamination.

Addressing Soil and Groundwater Contamination

Komatsu has established guidelines for testing soil and groundwater at our Japan facilities, and we perform investigations according to applicable laws and regulations at business units that are to be sold, closed, or demolished. If contamination is found, the Company takes appropriate measures under the supervision of local authorities. We are performing voluntary investigations at currently operating business units to check for contamination from volatile organic compounds (VOC) from cleaning solvents that were used in the past.

Komatsu has been surveying soil and groundwater for VOC contamination at Group business units in Japan since 2005. Business unit sites at which contamination has been detected have implemented countermeasures. The Company has selected methods to clean up the sites as quickly as possible.

Work at the Oyama Plant was completed in FY2009. The clean up work at the other sites are continuing.

Going forward, along with driving the clean up activities, we will monitor the site boundaries to make sure that off-site outflow of groundwater does not exceed the standards.

Status of Soil and Groundwater Cleanup in Japan

Business unit	Cleanup method	Cleanup status
Awazu Plant	Excavation and removal, soil vapor extraction, groundwater withdrawal and aeration, bioremediation*	In process
Komatsu Plant (formerly)	Excavation and removal, groundwater withdrawal and aeration, bioremediation	In process
Osaka Plant	Soil vapor extraction, air sparging, groundwater withdrawal and aeration, bioremediation	In process
Shonan Plant	Excavation and removal, groundwater withdrawal and aeration	In process
Tochigi Plant	Excavation and removal, bioremediation	In process

*: Bio-remediation is purification process of hazardous materials through utilizing micro organisms and returning the soil to a non-hazardous state.
- Surveys revealed no contamination for the Koriyama Plant, Technology Innovation Center in Hiratsuka, Techno Center in Izu and Field Testing Department in Oita.

Managing PCB (Polychlorinated Biphenyl) Waste

Komatsu stores and manages PCB-containing waste, such as transformers, in accordance with Japan's "Law Concerning Special Measures Against PCB Waste" and the "Waste Disposal and Public Cleansing Law." In FY2008, Komatsu entrusted PCB disposal to the Japan Environmental Safety Corporation (JESCO). A total of 599 PCB-containing capacitors were disposed of by FY2015. As of the end of FY2015, 72 capacitors are awaiting disposal.

Continuing through 2016, we plan to carry out further disposal work to locate low-concentration PCB waste as well.

Number of PCB-containing Transformers and Capacitors in Storage

Company	Site	Capacitors, etc.		Stabilizers	
		Number of disposal in FY2015	Number of awaiting disposal	Number of disposal in FY2015	Number of awaiting disposal
Komatsu Ltd.	Head office	0	4	0	30
	Awazu Plant	0	18	0	64
	Osaka Plant	0	0	0	93
	Oyama Plant	28	37	0	0
	Shonan Plant	0	2	0	0
	Tochigi Plant	0	5	0	0
	Field Testing Department	0	0	0	4
	Construction & Mining Equipment Marketing Division	0	0	0	131
Subtotal of Komatsu		28	66	0	322
Komatsu NTC Ltd.		0	2	0	0
Komatsu Cabtec Co., Ltd.		2	0	0	0
Komatsu Construction Equipment Sales and Service Japan Ltd.		0	4	0	448
Total of Komatsu group		2	6	0	448
Total		30	72	0	770

- The share from the former Komatsu Plant was transferred to the Awazu Plant. The share from the former Mooka Plant was transferred to the Oyama Plant.

Management of Chemical Substances and Pollution Prevention

Reducing the amount of PRTR-related substances

The number of substances covered by PRTR* with a handling volume of 1 ton or more (0.5 ton or more for Class I specified) in FY2015 was 25 with an increase of 2 substances over the previous year. The handling volume (1 ton or more) has been reduced about 18% from the previous year.

Among all PRTR-listed substances, the three substances of xylene, ethyl benzene and toluene account for approximately 93% of the emissions from Komatsu and Komatsu Group manufacturing facilities. Most of the emissions are released into the atmosphere.

At domestic Komatsu group production facilities, initiatives, such as switching to paints with a lower proportion of PRTR-listed substances, using high-solid paints, improving coating efficiency and reducing film thickness, are being undertaken for the continuous reduction of handling volumes. Also, substances handled in large volumes are being changed to secondary materials that contain chemical substances having less impact on the human body. The amount of emissions in FY2015 has been reduced by about 17% from the previous year.

*PRTR: Law designed to mandate the disclosure of the amount of specific chemical substances released into the environment to promote the management of such substances (The notification system based on the PRTR Law)

Environmental Risk Management

Reducing the amount of VOC released

The majority of VOC emissions are from VOC contained in paint such as Ethylbenzene and Xylene.

The amount of emissions in FY2015 has been reduced by about 18% from the previous year by switching to paints having a less content of volatile matter, migrating to paints having a higher coating efficiency and so on.

Further improvement efforts continue in pursuit of further reductions.

Komatsu Cabtec Co., Ltd.'s New Painting Line

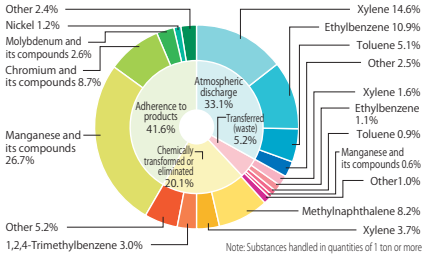
Names of Class I Designated Chemical Substances and the AmountsReleased and Transferred from Komatsu Group Manufacturing Facilities in Japan

(handling 1 ton or more, or 0.5 ton or more for Class I Specified Chemical Substances) (applicable PRTR substances from April 2010) (Unit: t)

Number under the PRTR Law	Name	Amount handled	Amount released				Amount transferred		Chemically transformed or eliminated	Amount Contained in Products
			Air	Water	Soil	Buried	Sewage	Waste		
412	Manganese and its compounds	319.3	0.5	0.0	—	—	—	7.5	—	311.3
80	Xylene	231.9	170.4	—	—	—	—	18.4	42.6	0.5
53	Ethylbenzene	155.4	126.5	—	—	—	—	12.9	15.6	0.4
87	Chromium and chromium (III) compounds	102.2	0.0	—	—	—	—	1.0	—	101.2
438	Methylna phthalene	96.5	0.5	—	—	—	—	—	96.0	—
300	Toluene	76.4	60.1	—	—	—	—	10.2	6.1	—
296	1,2,4-trimethyl benzene	55.6	18.7	—	—	—	—	1.9	35.0	0.1
453	Molybdenum and its compounds	30.7	—	—	—	—	—	0.0	—	30.6
448	Methylenebis (4,1 phenylene) = diisocyanate	23.1	—	—	—	—	—	0.0	22.5	0.5
308	Nickel	14.2	0.0	—	—	—	—	0.0	—	14.2
297	1,3,5-trimethyl benzene	8.7	4.1	—	—	—	—	0.5	4.1	—
88	Chromium (VI) compounds*1 *2	8.5	0.0	—	—	—	—	2.1	—	0.0
321	Vanadium compounds	8.1	—	—	—	—	—	0.0	—	8.1
207	2,6-Di-tert-butyl-4-methylphenol	7.8	—	0.0	—	—	—	0.7	0.0	7.0
132	Cobalt and its compounds	6.1	0.0	—	—	—	—	0.8	—	5.4
277	Triethylamine	6.0	1.2	—	—	—	—	0.0	4.8	—
460	Tricresyl phosphate	3.3	0.0	—	—	—	—	0.0	—	3.3
188	N,N-dicyclohe xylamine	3.2	0.3	0.0	—	—	—	2.6	0.2	0.1
258	1,3,5,7-tetraaza tricyclo[3, 3,1,1(3,7)] decane*3	3.1	—	—	—	—	—	0.0	1.6	1.6
349	Phenol*3	3.1	0.0	—	—	—	—	0.0	3.1	0.0
392	n-hexane	2.4	1.0	—	—	—	—	0.0	1.4	—
302	Naphthalene	2.2	1.0	—	—	—	—	0.5	0.7	—
83	Isopropyl benzene	2.0	1.4	—	—	—	—	0.1	0.4	—
71	Ferric chloride	1.2	0.0	—	—	—	—	1.2	—	—
1	Zinc compounds (water- soluble)	1.1	0.0	—	—	—	—	0.3	—	0.8

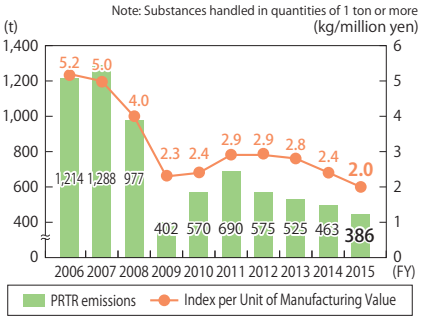
*1: During chrome plating, chromium (VI) compounds become chromium compounds. Therefore, the amount transferred and the amount contained in products are entered as chromium and chromium(III) compounds.
*2: PRTR Class I Specified Chemical Substances
*3: Although the amount contained is below the amount that requires registration with the PRTR, we report the data because the amount released exceeds one ton.

Breakdown of the Amount of PRTR-related Substances (Released and Transferred from Komatsu Group Manufacturing Facilities in Japan)



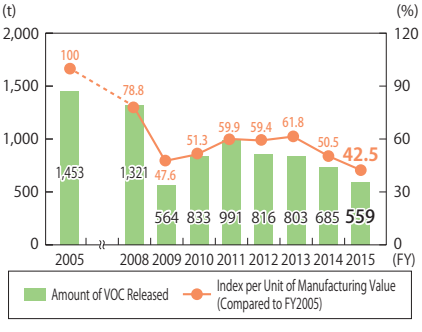
Amount of PRTR-related Substances

(Releasedfrom Komatsu Group Manufacturing Facilities in Japan)



Amount of VOC

(Released from Komatsu Group Manufacturing Facilities in Japan)



Reducing the Use of Substances of Environmental Concern and Complying with the EU REACH Regulation

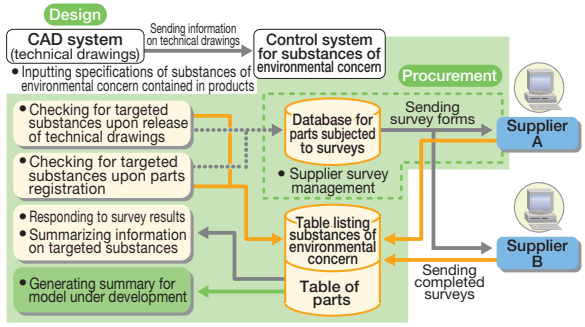
Komatsu has been making efforts from an early stage to reduce the use of asbestos, lead, and other substances of environmental concern. In FY1999, Komatsu created its own list of banned substances and substances approved for use only in limited circumstances (Refer to "Substances of Environmental Concern Banned or to Be Reduced for Use in Products"), which was based in part on the chemical substances banned under Japan's Law Concerning the Examination and Regulation of Manufacture of Chemical Substances Control, as well as regulations in other countries.

In addition, Komatsu has begun comprehensive control of substances of environmental concern. Recently, in compliance with REACH*1, Komatsu began revising its listing of substances designated as approved for limited use, "to be reduced," and "banned." Through the cooperation of suppliers, the Company has initiated a system to strengthen control of substances of environmental concern in its products. This system has been deployed in Japan and Europe, and is also being implemented in other overseas subsidiaries.

By using this system, we identify SVHC (substances of very high concern) in vehicles currently in production and in newly developed vehicles. Furthermore, we also regularly check for new SVHCs to be added to the list.

There are currently 168 SVHCs registered, but more are added on a bi-yearly basis. In future, it is said that the number of SVHC will increase up to 1,500. Komatsu has devised a workflow to monitor control of these substances.

Control System for Substances of Environmental Concern



Substances of Environmental Concern Banned orto Be Reduced for Use in Products

Rank	Number	Chemical Substance
Banned	14	● Hexavalent Chromium ● Cadmium ● Mercury ● PBB/PBDE ● Tri-substituted Organostannic Compounds ● PCB ● Asbestos ● Specified CFCs/Alternative CFCs (HCFC) ● Trichloroethylene ● Triethanolamine ● Hexachlorobenzene ● PFOS (Perfluorooctanesulfates)
To be reduced (Subject to limited use)	17	● Lead ● Arsenic ● Selenium ● Alternative CFCs (HFC) ● Specified phthalate ester (DEHP/DBP/BBP/DIBP)*2 ● Specified Brominated Flame Retardents (HBCDD)/ Specified Chlorinated Flame Retardents (TCEP) ● Polycyclic Aromatic Hydrocarbons (PAH) ● RCF (Fire-Resistant Ceramic Fibers) (Alumina and Scilica Types) ● Methanol ● DZ ● BNST ● DOTE*3 ● UV327*3
Substances of Very High Concern (SVHC) under the EU REACH Reguleation	(168)*4	Komatsu is subject to control the following substances, which might be used in Komatsu products. ● DEHP/DBP/BBP/DIBP ● HBCDD/DBDE/Trisphosphates (2-Chloroethyl) ● RCF ● Specified Lead Compounds (SOC 4) ● DOTE ● UV327

*1: REACH: EU regulations for Registration, Evaluation, Authorization and Restriction of Chemicals
*2: Diethylhexyl phthalate, dibutyl phthalate, benzyl butyl phthalate, diisobutyl phthalate
*3: Review for stricter limits due to regulatory trends.
*4: The number of substances registered up until December, 2015 (progressively updated). Includes materials that are not contained in Komatsu construction equipment.

Recent External Commendations and Evaluations on Komatsu's Environmental Conservation and Social Activities

2015	September	Selected for inclusion in the Dow Jones Sustainability Indices (World and Asia Pacific)
	November	Selected by CDP as "Leading Company for Climate Change Information Disclosure"
2016	January	Ranked 10th (out of 705 companies) in the Manufacturing Sector in Nihon Keizai Shimbun's 19th Environmental Management Survey
	February	Defense Systems Division awarded the Energy Conservation Center, Japan's "Energy Conservation Prize (Case Category) Energy Conservation Center Chairman's Award"
	February	Komatsu Environmental Report Digest 2015 awarded the "19th Environmental Communication Award --Excellence Award" from the Global Environment Forum of the Ministry of the Environment

Environmental Data by Manufacturing Facility in Japan

Overview

Manufacturing facility	Awazu Plant (established in 1938)	Kanazawa Plant (established in 2007)	Osaka Plant (established in 1952)
Location	Komatsu, Ishikawa Prefecture	Kanazawa, Ishikawa Prefecture	Hirakata, Osaka Prefecture
Main products	Small and medium-sized bulldozers, small hydraulic excavators, small and medium-sized wheel loaders, motor graders, armored vehicles, etc.	Ultra-large hydraulic excavators, large presses, medium presses	Large bulldozers, medium-and large-sized hydraulic excavators, mobile crushers/recyclers/tub grinders (crushers, soil stabilizers, tub grinders, etc.)
Site/Green Landscape (1,000 m²)	700/85	134/30	575/80
Number of employees	2,926	646	2,614
Date of ISO14001 certification acquisition	September 1997	May 2007	July 1997

*The number of employees includes those working for Komatsu affiliates on the premises.
*The number of employees as of the end of March 2016.

Major Performance

Environmental impact

*Refer to the Data on Environmental Impact Resulting from Business Activities for details on the methods used to calculate amounts.
*Total emissions of waste are expressed as a composite of the amount recycled (excluding valuables) and the amount disposed.
*Recycling rate is calculated by dividing the amount recycled (including valuables) by the amount generated (including valuables).
*Total emissions of BOD and COD are calculated by multiplying the average concentration by the amount of wastewater.

Item	Awazu Plant (established in 1938)	Kanazawa Plant (established in 2007)	Osaka Plant (established in 1952)
Total CO_2 emissions	30,838 t-CO_2	1,407 t-CO_2	22,509 t-CO_2
NOx total amount	75,907 kg	— kg	1,685 kg
SOx total amount	4,804 kg	0 kg	0 kg
Total emissions of waste	1,380 t	110 t	1,077 t
Amount recycled	1,379 t	110 t	1,075 t
Recycling rate	99.9 %	100 %	99.9 %
BOD emissions	1,055 kg	38 kg	459 kg
COD emissions	1,804 kg	124 kg	1,196 kg
Wastewater	599,417 m³	34,965 m³	181,011 m³
Output of in-house power generation	14,590 MWh	623 MWh	4,800 MWh

Energy consumption

*The heat energy conversion factor is calculated in keeping with Greenhouse Gas Emissions Calculation - Reporting Manual, which is based on the act on Promotion of Global Warming Countermeasures.

Item	Awazu Plant (established in 1938) Actual consumption	Awazu Plant (established in 1938) Converted to calorie equivalents (GJ)	Kanazawa Plant (established in 2007) Actual consumption	Kanazawa Plant (established in 2007) Converted to calorie equivalents (GJ)	Osaka Plant (established in 1952) Actual consumption	Osaka Plant (established in 1952) Converted to calorie equivalents (GJ)
Electricity	39,289 MWh	381,996	3,616 MWh	35,256	38,025 MWh	369,263
Heavy oil A	4,029 kℓ	157,543	0 kℓ	0	52 kℓ	2,029
Kerosene	12 kℓ	430	0 kℓ	0	8 kℓ	296
Light oil	413 kℓ	15,760	1 kℓ	33	430 kℓ	16,439
Town gas	0 Nkm³	0	0 Nkm³	0	3,234 Nkm³	135,519
LPG	1,208 t	60,647	5 t	273	34 t	1,719
Other		1,454		0		1,153
Total		617,830		35,562		526,417

Water consumption

Item	Awazu Plant (established in 1938)	Kanazawa Plant (established in 2007)	Osaka Plant (established in 1952)
Groundwater	404,300 m³	27,922 m³	21,934 m³
Industrial water	0 m³	0 m³	0 m³
Supply water	81,549 m³	7,043 m³	94,942 m³
Total	485,849 m³	34,965 m³	116,876 m³

Compliance Conditions to Major Regulations

Air

Item	Unit	Awazu Plant (established in 1938) Facility	Awazu Plant (established in 1938) Regulated value	Awazu Plant (established in 1938) Actual value	Kanazawa Plant (established in 2007) Facility	Kanazawa Plant (established in 2007) Regulated value	Kanazawa Plant (established in 2007) Actual value	Osaka Plant (established in 1952) Facility	Osaka Plant (established in 1952) Regulated value	Osaka Plant (established in 1952) Actual value
Nitrogen oxides (NOx)	ppm	Boiler	180	100	N/A	—	—	Boiler	150	23
	ppm	Diesel engine	950	760				Metal furnace	180	56
	ppm							Paint drying furnace	230	13
	ppm							Gas engine	600	21
Sulfur oxides (SOx)	—	K-value regulation	17.5	2.53						
Soot and dust	g/m³N	Boiler	0.3	0.054	N/A	—	—	Boiler	0.05	0.002
	g/m³N	Diesel engine	0.1	0.034				Metal furnace	0.1	0.024
	g/m³N							Paint drying furnace	0.1	0.005
	g/m³N									

*Regulated values are in accordance with the Air Pollution Control Law and local regulations.

Wastewater

Item	Regulated value according to the Water Pollution Control Law	Awazu Plant (established in 1938) Regulated value	Awazu Plant (established in 1938) Actual value Maximum	Awazu Plant (established in 1938) Actual value Minimum	Awazu Plant (established in 1938) Actual value Average	Kanazawa Plant (established in 2007) Regulated value	Kanazawa Plant (established in 2007) Actual value Maximum	Kanazawa Plant (established in 2007) Actual value Minimum	Kanazawa Plant (established in 2007) Actual value Average	Osaka Plant (established in 1952) Regulated value	Osaka Plant (established in 1952) Actual value Maximum	Osaka Plant (established in 1952) Actual value Minimum	Osaka Plant (established in 1952) Actual value Average
pH	5.8~8.6	5.8~8.6	7.2	6.4	6.7	5.0~9.0	8.2	6.4	7.1	5.8~8.6	7.5	7	7.2
BOD (Biochemical oxygen demand)	160mg/ℓ	80	2.3	ND	1.3	80	1.6	1.1	1.4	35	11	ND	2.5
COD (Chemical Oxygen Demand)	160mg/ℓ	80	5.1	ND	2.5	80	9	1.1	3.2	35	11	3.6	6.6
Suspended solids (SS)	200mg/ℓ	120	3.0	ND	1.5	120	4.2	2.0	3.0	70	7	ND	2.4
Mineral oils	5mg/ℓ	5	ND	ND	ND	5	ND	ND	ND	5	ND	ND	ND
Copper	3mg/ℓ	3	ND	ND	ND	3	ND	ND	ND	3	ND	ND	ND
Zinc	2mg/ℓ	2	0.17	ND	0.09	2	1.5	1.1	1.3	2	ND	ND	ND
Nitrogen	120mg/ℓ	120	3.9	1.6	3.0	120	0.2	0.04	0.1	120	37	5.4	17.9
Phosphorus	16mg/ℓ	16	0.31	0.01	0.13	16	4.8	0.03	2.4	16	0.16	0.02	0.07
Cadmium	0.03mg/ℓ	0.03	ND	ND	ND	0.03	ND	ND	ND	0.003	ND	ND	ND
Lead	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.01	ND	ND	ND
Chromium (VI)	0.5mg/ℓ	0.5	ND	ND	ND	0.5	ND	ND	ND	0.05	ND	ND	ND
Trichloroethylene	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.01	ND	ND	ND
Tetrachloroethylene	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.01	ND	ND	ND
Dichloromethane	0.2mg/ℓ	0.2	ND	ND	ND	0.2	ND	ND	ND	0.02	ND	ND	ND
1,1,1-trichloroethane	3mg/ℓ	3	ND	ND	ND	3	ND	ND	ND	1	ND	ND	ND

*Regulated values are in accordance with the Water Pollution Control Law, Sewerage Law and local regulations.
*ND ("not detected") indicates a value below the lower limit of detection.
*ND is considered to be the lower limit of detection when calculating the average.
*Other items are confirmed to be below the regulated value.

*Data for the Kanazawa Plant include data for the Kanazawa Dai-ichi and Dai-ni Plant.

*Data for the Osaka Plant include data for the Rokko Plant.

Ibaraki Plant (established in 2007)	Oyama Plant (established in 1962)	Koriyama Plant (established in 1994)	Shonan Plant (established in 1966)
Hitachinaka, Ibaraki Prefecture	Oyama, Tochigi Prefecture	Koriyama, Fukushima Prefecture	Hiratsuka, Kanagawa Prefecture
Large wheel loaders, dump trucks	Engines for construction/industrial machinery, diesel generators, hydraulic equipment, axle, excimer lasers, etc.	Hydraulic cylinders, swivel joints, gear pumps	Control equipment for construction and mining equipment, hybrid components Thermoelectric modules, temperature control equipment, etc.
350/71	591/126	297/153	69/14
862	3,170	425	1,015
May 2007	May 1997	July 2002	March 2000

Item	Actual value	Item	Actual value	Item	Actual value	Item	Actual value
Total CO_2 emissions	3,402 t-CO_2	Total CO_2 emissions	41,683 t-CO_2	Total CO_2 emissions	7,752 t-CO_2	Total CO_2 emissions	3,547 t-CO_2
NOx total amount	606 kg	NOx total amount	22,182 kg	NOx total amount	41,322 kg	NOx total amount	— kg
SOx total amount	2 kg	SOx total amount	18 kg	SOx total amount	1,696 kg	SOx total amount	0 kg
Total emissions of waste	321 t	Total emissions of waste	1,545 t	Total emissions of waste	790 t	Total emissions of waste	145 t
Amount recycled	321 t	Amount recycled	1,545 t	Amount recycled	790 t	Amount recycled	145 t
Recycling rate	100 %	Recycling rate	100 %	Recycling rate	100 %	Recycling rate	100 %
BOD emissions	2,831 kg	BOD emissions	2,108 kg	BOD emissions	53 kg	BOD emissions	1,883 kg
COD emissions	— kg	COD emissions	3,023 kg	COD emissions	152 kg	COD emissions	— kg
Wastewater	23,262 m^3	Wastewater	356,300 m^3	Wastewater	11,851 m^3	Wastewater	35,093 m^3
Output of in-house power generation	641 MWh	Output of in-house power generation	9,063 MWh	Output of in-house power generation	4,386 MWh	Output of in-house power generation	258 MWh

Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
Electricity	6,238 MWh	60,860	Electricity	56,307 MWh	548,675	Electricity	8,807 MWh	85,124	Electricity	8,671 MWh	85,532
Heavy oil A	0 kℓ	0	Heavy oil A	33 kℓ	1,286	Heavy oil A	1,084 kℓ	42,384	Heavy oil A	0 kℓ	0
Kerosene	2 kℓ	57	Kerosene	1,402 kℓ	51,457	Kerosene	0 kℓ	0	Kerosene	0 kℓ	0
Light oil	353 kℓ	13,495	Light oil	4,243 kℓ	162,086	Light oil	6 kℓ	232	Light oil	35 kℓ	1,345
Town gas	0 Nkm^3	0	Town gas	2,620 Nkm^3	109,757	Town gas	0 Nkm^3	0	Town gas	63 Nkm^3	2,636
LPG	26 t	1,302	LPG	34 t	1,692	LPG	469 t	23,534	LPG	0 t	0
Other		0	Other		785	Other	5	156	Other		0
Total		75,713	Total		875,739	Total		151,430	Total		89,513

Item	Actual value	Item	Actual value	Item	Actual value	Item	Actual value
Groundwater	0 m^3	Groundwater	395,100 m^3	Groundwater	0 m^3	Groundwater	0 m^3
Industrial water	0 m^3	Industrial water	0 m^3	Industrial water	2,736 m^3	Industrial water	0 m^3
Supply water	23,212 m^3	Supply water	1,672 m^3	Supply water	19,140 m^3	Supply water	35,093 m^3
Total	23,212 m^3	Total	396,772 m^3	Total	21,876 m^3	Total	35,093 m^3

Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value
Diesel engine	100	63*	Diesel engine	950	940	Cogeneration engine	760	652	N/A	—	—
			Gas turbine	70	15						
K-value regulation	9	0.05	K-value regulation	7.0	0.38	K-value regulation	11.5	0.76			
Diesel engine	0.1	0.014	Diesel engine	0.1	0.03	Cogeneration engine	0.1	0.036	N/A	—	—
			Gas turbine	0.05	0.001						

Regulated value (Sewage Water Law)	Actual value			Regulated value	Actual value			Regulated value	Actual value			Regulated value (Sewage Water Law)	Actual value		
	Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average
5~9	8.9	7.8	8.5	5.8~8.6	7.3	7	7.2	5.8~8.6	7.4	6.9	7.2	5~9	8.6	7.4	8.0
600	210	42	122	25	18	1.2	5.9	40	10	1.1	4.5	600	170	1	34
—	—	—	—	25	13.6	3	8.5	40	19	5.9	12.8	—	—	—	—
600	440	24	187	50	23	2.4	8.1	70	6.6	2.5	4.0	600	190	ND	25
5	ND	ND	ND	5	ND	ND	ND	1	0.7	ND	0.5	5	ND	ND	ND
—	—	—	—	3	0.2	ND	0.1	2	ND	ND	—	3	0.05	ND	0.05
—	—	—	—	2	0.1	ND	0.1	2	0.05	0.05	—	2	0.32	ND	0.13
—	—	—	—	20	9.9	1.1	5.1	120	8.2	8.2	—	—	—	—	—
—	—	—	—	2	0.4	0.1	0.3	16	2.4	2.4	—	—	—	—	—
—	—	—	—	0.03	ND	ND	ND	0.03	ND	ND	—	0.03	ND	ND	ND
—	—	—	—	0.1	ND	ND	ND	0.1	ND	ND	ND	0.1	ND	ND	ND
—	—	—	—	0.1	ND	ND	ND	0.2	ND	ND	ND	0.5	ND	ND	ND
—	—	—	—	0.1	ND	ND	ND	0.1	ND	ND	—	0.1	ND	ND	ND
—	—	—	—	0.1	ND	ND	ND	0.1	ND	ND	—	0.1	ND	ND	ND
—	—	—	—	—	—	—	—	0.2	ND	ND	—	0.2	ND	ND	ND
—	—	—	—	3	ND	ND	ND	3	ND	ND	—	3	ND	ND	ND

*Data for the Shonan Plant include data for KELK Ltd.(excluding GIGAPHOTON, Inc)

Environmental Data by Manufacturing Facility in Japan

Overview

Manufacturing facility	Tochigi Plant (established in 1968)	Development Division, Technology Innovation Center (established in 1985)	Komatsu Castex Ltd. (established in 1952)
Location	Oyama, Tochigi Prefecture	Hiratsuka, Kanagawa Prefecture	Himi, Toyama Prefecture
Main products	Forklift trucks, mini excavators, mini wheel loaders	R&D on business fields of the Komatsu Group	Ironcastings, steel castings, molds for casting, etc.
Site/Green Landscape (1,000 m²)	215/25	195/124	433/104
Number of employees	650	341	869
Date of ISO14001 certification acquisition	February 1998	May 2008	January 2000

*The number of employees includes those working for Komatsu affiliates on the premises.
*The number of employees as of the end of March 2016.

Major Performance

Environmental impact

*Refer to the Data on Environmental Impact Resulting from Business Activities for details on the methods used to calculate amounts.
*Total emissions of waste are expressed as a composite of the amount recycled (excluding valuables) and the amount disposed.
*Recycling rate is calculated by dividing the amount recycled (including valuables) by the amount generated (including valuables).
*Total emissions of BOD and COD are calculated by multiplying the average concentration by the amount of wastewater.

Item	Actual value	Item	Actual value	Item	Actual value
Total CO_2 emissions	3,383 t-CO_2	Total CO_2 emissions	1,358 t-CO_2	Total CO_2 emissions	43,070 t-CO_2
NOx total amount	2,874 kg	NOx total amount	224 kg	NOx total amount	7,530 kg
SOx total amount	1,181 kg	SOx total amount	1 kg	SOx total amount	1,435 kg
Total emissions of waste	377 t	Total emissions of waste	155 t	Total emissions of waste	4,514 t
Amount recycled	377 t	Amount recycled	154 t	Amount recycled	4,509 t
Recycling rate	100 %	Recycling rate	99.6 %	Recycling rate	100 %
BOD emissions	102 kg	BOD emissions	8 kg	BOD emissions	1,169 kg
COD emissions	136 kg	COD emissions	17 kg	COD emissions	1,906 kg
Wastewater	20,145 m³	Wastewater	3,820 m³	Wastewater	710,552 m³
Output of in-house power generation	280 MWh	Output of in-house power generation	5 MWh	Output of in-house power generation	0 MWh

Energy consumption

*The heat energy conversion factor is calculated in keeping with Greenhouse Gas Emissions Calculation - Reporting Manual, which is based on the act on Promotion of Global Warming Countermeasures.

Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
Electricity	5,222 MWh	50,891	Electricity	2,847 MWh	27,514	Electricity	85,900 MWh	842,233
Heavy oil A	550 kℓ	21,504	Heavy oil A	0 kℓ	0	Heavy oil A	1,313 kℓ	51,353
Kerosene	0 kℓ	0	Kerosene	90 kℓ	3,309	Kerosene	511 kℓ	18,744
Light oil	46 kℓ	1,751	Light oil	6 kℓ	230	Light oil	185 kℓ	7,061
Town gas	0 Nkm³	0	Town gas	0 Nkm³	0	Town gas	0 Nkm³	0
LPG	67 t	3,341	LPG	8 t	389	LPG	1,590 t	79,811
Other		338	Other		17	Other		0
Total		77,825	Total		31,458	Total		999,202

Water consumption

Item	Actual value	Item	Actual value	Item	Actual value
Groundwater	26,284 m³	Groundwater	0 m³	Groundwater	710,552 m³
Industrial water	0 m³	Industrial water	0 m³	Industrial water	0 m³
Supply water	0 m³	Supply water	7,617 m³	Supply water	19,339 m³
Total	26,284 m³	Total	7,617 m³	Total	729,891 m³

Compliance Conditions to Major Regulations

Air

Item	Unit	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value
Nitrogen oxides (NOx)	ppm	Small boilers	(260)	110	Service generator	190	150	Annealing furnace	200	170
	ppm				Cold/hot water generator	390	36	Annealing furnace (small)	180	51
	ppm							Calciners	220	11
	ppm									
Sulfur oxides (SOx)	—	K-value regulation	7.0	0.1	K-value regulation	11.5	0.07	K-value regulation	17.5	1.03
Soot and dust	g/m³N	Small boilers	(0.5)	0.006	Service generator	0.1	0.02	Annealing furnace	0.25	0.01
	g/m³N				Cold/hot water generator	0.2	0.003	Annealing furnace (small)	0.2	0.01 or less
	g/m³N							Calciners	0.15	0.01
	g/m³N							Arch furnace	0.1	0.01 or less

*Regulated values are in accordance with the Air Pollution Control Law and local regulations.
*Regulated values of NOx, soot and dust are in accordance with self-regulatory measures, because these boilers are small.

Wastewater

Item	Regulated value according to the Water Pollution Control Law	Regulated value	Actual value			Regulated value	Actual value			Regulated value	Actual value		
			Maximum	Minimum	Average		Maximum	Minimum	Average		Maximum	Minimum	Average
pH	5.8~8.6	5.8~8.6	8.4	6.9	7.3	5.8~8.6	8.2	6.7	7.4	5.8~8.6	8.4	6.6	7.6
BOD (Biochemical oxygen demand)	160mg/ℓ	25	13.9	1.5	5.1	10	4	1	2	25	5.3	ND	1.6
COD (Chemical Oxygen Demand)	160mg/ℓ	25	14.8	3.1	6.8	25	7	4	5.2	160	3.9	1.8	2.6
Suspended solids (SS)	200mg/ℓ	50	20.4	1.6	10.4	65	10	ND	4.2	90	8	ND	3.1
Mineral oils	5mg/ℓ	5	1.4	ND	0.7	5	ND	ND	ND	5	1.7	ND	0.6
Copper	3mg/ℓ	3	ND	ND	ND	1	ND	ND	ND	1	ND	ND	ND
Zinc	2mg/ℓ	2	0.2	ND	0.1	1	0.04	ND	0.03	2	ND	ND	ND
Nitrogen	120mg/ℓ	20	11.6	0.8	5.2	—	—	—	—	120	6.6	1.4	4.0
Phosphorus	16mg/ℓ	2	1.0	ND	0.4	—	—	—	—	16	1.6	0.1	0.5
Cadmium	0.03mg/ℓ	0.03	ND	ND	ND	0.03	ND	ND	ND	0.03	ND	ND	ND
Lead	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.1	ND	ND	ND
Chromium (VI)	0.5mg/ℓ	0.1	ND	ND	ND	0.5	ND	ND	ND	0.5	ND	ND	ND
Trichloroethylene	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.1	ND	ND	ND
Tetrachloroethylene	0.1mg/ℓ	0.1	ND	ND	ND	0.1	ND	ND	ND	0.1	ND	ND	ND
Dichloromethane	0.2mg/ℓ	—	—	—	—	0.2	ND	ND	ND	0.2	ND	ND	ND
1,1,1-trichloroethane	3mg/ℓ	3	ND	ND	ND	3	ND	ND	ND	3	ND	ND	ND

*Regulated values are in accordance with the Water Pollution Control Law, Sewerage Law and local regulations.
*ND ("not detected") indicates a value below the lower limit of detection.
*ND is considered to be the lower limit of detection when calculating the average.
*Other items are confirmed to be below the regulated value.

Overview

Manufacturing facility	Komatsu NTC Ltd. (established in 1945)	Komatsu Cabtec Co., Ltd. (established in 1918)
Location	Nanto, Toyama Prefecture	Ryuou-cho, Gamou, Shiga Prefecture
Main products	Machine tools, laser process machines, wire saws	Cabs for construction equipment
Site/Green Landscape (1,000 m²)	216/22	42/10
Number of employees	1,507	347
Date of ISO14001 certification acquisition	June 1999	December 2007

*The number of employees includes those working for Komatsu affiliates on the premises.
*The number of employees as of the end of March 2016.

Major Performance

Environmental impact
*Refer to the Data on Environmental Impact Resulting from Business Activities for details on the methods used to calculate amounts.
*Total emissions of waste are expressed as a composite of the amount recycled (excluding valuables) and the amount disposed.
*Recycling rate is calculated by dividing the amount recycled (including valuables) by the amount generated (including valuables).
*Total emissions of BOD and COD are calculated by multiplying the average concentration by the amount of wastewater.

Item	Actual value	Item	Actual value
Total CO_2 emissions	7,390 t-CO_2	Total CO_2 emissions	3,052 t-CO_2
NOx total amount	— kg	NOx total amount	11 kg
SOx total amount	0 kg	SOx total amount	0 kg
Total emissions of waste	1,432 t	Total emissions of waste	936 t
Amount recycled	1,430 t	Amount recycled	851 t
Recycling rate	99.9 %	Recycling rate	97.9 %
BOD emissions	711 kg	BOD emissions	150 kg
COD emissions	— kg	COD emissions	198 kg
Wastewater	631,512 m³	Wastewater	52,923 m³
Output of in-house power generation	65 MWh	Output of in-house power generation	0 MWh

Energy consumption
*The heat energy conversion factor is calculated in keeping with Greenhouse Gas Emissions Calculation - Reporting Manual, which is based on the act on Promotion of Global Warming Countermeasures.

Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
Electricity	18,476 MWh	180,962	Electricity	6,013 MWh	58,732
Heavy oil A	0 kℓ	0	Heavy oil A	0 kℓ	0
Kerosene	0 kℓ	0	Kerosene	6 kℓ	221
Light oil	47 kℓ	1,805	Light oil	29 kℓ	1,102
Town gas	0 Nkm³	0	Town gas	0 Nkm³	0
LPG	57 t	2,877	LPG	213 t	10,668
Other		0	Other		221
Total		185,643	Total		70,944

Water consumption

Item	Actual value	Item	Actual value
Groundwater	635,512 m³	Groundwater	29,380 m³
Industrial water	0 m³	Industrial water	0 m³
Supply water	12,714 m³	Supply water	22,503 m³
Total	648,226 m³	Total	51,883 m³

Compliance Conditions to Major Regulations

Air

Item	Unit	Facility	Regulated value	Actual value	Facility	Regulated value	Actual value
Nitrogen oxides (NOx)	ppm	N/A	—	—	N/A	—	—
Sulfur oxides (SOx)	—						
Soot and dust	g/m³N	N/A	—	—	N/A	—	—

*Regulated values are in accordance with the Air Pollution Control Law and local regulations.

Wastewater

Item	Regulated value according to the Water Pollution Control Law	Regulated value	Actual value			Regulated value	Actual value		
			Maximum	Minimum	Average		Maximum	Minimum	Average
pH	5.8~8.6	5.8~8.6	7.3	6.2	6.7	5.8~8.6	7.1	6.7	6.9
BOD (Biochemical oxygen demand)	160mg/ℓ	160	2.3	ND	1.1	20	14.0	ND	2.8
COD (Chemical Oxygen Demand)	160mg/ℓ	—	—	—	—	20	11.3	1.4	3.7
Suspended solids (SS)	200mg/ℓ	200	6.0	ND	1.7	20	5.4	ND	2.2
Mineral oils	5mg/ℓ	5	1	ND	0.8	—	—	—	—
Copper	3mg/ℓ	—	—	—	—	0.1	ND	ND	ND
Zinc	2mg/ℓ	—	—	—	—	0.5	0.15	ND	0.05
Nitrogen	120mg/ℓ	—	—	—	—	8	3.1	0.8	1.7
Phosphorus	16mg/ℓ	—	—	—	—	0.6	ND	ND	ND
Lead	0.1mg/ℓ	—	—	—	—	0.03	ND	ND	ND

*Regulated values are in accordance with the Water Pollution Control Law, Sewerage Law and local regulations.
*ND ("not detected") indicates a value below the lower limit of detection.
*ND is considered to be the lower limit of detection when calculating the average.
*Other items are confirmed to be below the regulated value.
*Data for Komatsu NTC Ltd. include data for the Toyama plant and the Fukuno Plant.

Major Performance

Environmental impact
*Total emissions of waste are expressed as a composite of the amount recycled (including valuables) and the amount disposed.
*Recycling rate is calculated by dividing the amount recycled (including valuables) by the amount generated (including valuables).

Item	Actual value	Item	Actual value	Item	Actual value
Total CO_2 emissions	4,179 t-CO_2	Total CO_2 emissions	2,022 t-CO_2	Total CO_2 emissions	2,269 t-CO_2
Total emissions of waste	5,104 t	Total emissions of waste	2,459 t	Total emissions of waste	4,834 t
Amount recycled	4,112 t	Amount recycled	1,266 t	Amount recycled	4,400 t
Recycling rate	80.6 %	Recycling rate	51.5 %	Recycling rate	91.0 %

Energy consumption
*The heat energy conversion factor is calculated in keeping with Greenhouse Gas Emissions Calculation - Reporting Manual, which is based on the act on Promotion of Global Warming Countermeasures.

Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)	Item	Actual consumption	Converted to calorie equivalents (GJ)
Electricity	7,510 MWh	74,879	Electricity	4,209 MWh	41,967	Electricity	4,824 MWh	48,094
Heavy oil A	37 kℓ	1,458	Heavy oil A	0 kℓ	0	Heavy oil A	0 kℓ	0
Kerosene	380 kℓ	13,942	Kerosene	61 kℓ	2,246	Kerosene	130 kℓ	4,771
Light oil	47 kℓ	1,783	Light oil	89 kℓ	3,352	Light oil	6 kℓ	222
LPG	21 t	1,046	LPG	4 t	183	LPG	22 t	1,092
Town gas		891	Town gas		0	Town gas		86
Total		94,000	Total		47,747	Total		54,265

Overview

Manufacturing facility	Komatsu Construction Equipment Sales and Service Japan Ltd. (established in March 1967)	Komatsu Rental Ltd. (established in Oct. 2006)	Komatsu Forklift Japan Ltd. (established in Jan. 1973)
Location	5, Higashiogishima, Kawasaki-ku, Kawasaki-shi, Kanagawa (Head office)	Yokohama, Kanagawa Prefecture (Head office)	Shinagawa, Tokyo metropolitan (Head office)
Activities	Sales and service for construction machinery	Rentals for construction machinery, engineering works construction machine apparatuses, and vehicles	Sales and service for forklift
Number of bases	104	137	130
Number of employees	1,917	901	1,590
Date of ISO14001 certification acquisition	—	—	—

*The number of business sites and employees as of the end of March 2016.

Environmental Data by Manufacturing Facility outside Japan

The Americas / Europe

		CMO	PMO	NMO	KDB	Hensley	KUK	KOHAG	KMG
Overview	Manufacturing facilities	Komatsu America Corp.			Komatsu do Brasil Ltda.	Hensley Industries, Inc.	Komatsu UK Ltd.	Komatsu Hanomag GmbH	Komatsu Mining Germany GmbH
		Chattanooga Manufacturing Operation	Peoria Manufacturing Operation	Newberry Manufacturing Operation					
	Location	Tennessee, U.S.A.	Illinois, U.S.A.	South Carolina, U.S.A.	São Paulo, Brazil	Texas, U.S.A.	Birtley, United Kingdom	Hannover, Germany	Düsseldorf, Germany
	Main products	Hydraulic excavators, motor graders	Large wheel loaders, large dump trucks	Utility equipment (small construction equipment)	Hydraulic excavators, bulldozers	Buckets, teeth and edges	Hydraulic excavators	Wheel loaders	Ultra-large hydraulic excavators
	Number of employees	1,640			844	410	318	500	626
Energy consumption	Electricity (MWh)	8,061	12,920*	2,381	15,448	22,845	5,120	5,305	5,641
	Heavy oil, light oil, et al. (kℓ)	—	66	—	78	63	64	—	36
	Natural gas (thousand m³)	125	1,389	34	0	2,146	788	836	937
	LPG, et al. (t)	—	21 (LPG)	—	20 (LPG)	68 (LPG)	—	2,235* (District heating)	14 (LPG)
	Total energy consumption (GJ)	85,123	185,025	25,012	175,910	314,898	95,771	86,347	91,865
	CO_2 (t-CO_2)	4,845	3,000	1,424	2,249	17,661	4,267	4,068	4,287
Water consumption (t)		16,746	15,489	1,980	17,164	25,324	10,187	11,071	6,895
Total emissions of waste (t)		1,097	1,760	31	3,821	15,100	1,302	1,604	2,185
Date of ISO14001 certification acquisition		April 1998	March 2002	March 2004	January 2002	November 2009	December 1998	September 2000	July 2002

*Electricity of a renewable source is used.

*Unit:MWh

Europe / Asia

		KIM	KFAB	KMR	KI	KUI	BKC	KIPL	KSC
Overview	Manufacturing facilities	Komatsu Italia Manufacturing S.p.A	Komatsu Forest AB	Komatsu Manufacturing Rus, LLC	PT Komatsu Indonesia Tbk	PT Komatsu Undercarriage Indonesia	Bangkok Komatsu Co., Ltd.	Komatsu India Pvt.	Komatsu Shantui Construction Machinery Co., Ltd.
	Location	Este (PD), Italy	Umeå, Sweden	Yaroslavl, Russia	Jakarta, Indonesia	West Java, Indonesia	Chonburi, Thailand	Chennai, India	Shandong, China
	Main products	Utility equipment (small construction equipment)	Forestry equipment	Hydraulic excavators	Hydraulic excavators, bulldozers, wheel loaders	Components for construction equipment, crawler type for construction machinery, pins	Hydraulic excavators, castiron parts	Dump trucks	Hydraulic excavators
	Number of employees	329	579	229	1,043	742	784	339	678
Energy consumption	Electricity (MWh)	3,032	2,541	2,764	15,712	35,570	20,925	3,023	3,612
	Heavy oil, light oil, et al. (kℓ)	—	29	26	212	436	128	293	26
	Natural gas (thousand m³)	390	—	966	1,041	513	—	—	—
	LPG, et al. (t)	—	1,978* (District heating)	—	150 (LPG)	234 (LPG)	151 (LPG)	—	5,808 (LNG·Steam)
	Total energy consumption (GJ)	45,196	29,487	68,101	214,507	404,236	221,152	41,447	62,162
	CO_2 (t-CO_2)	2,028	287	2,891	13,943	27,552	11,983	3,600	3,525
Water consumption (t)		11,612	3,825	9,447	45,261	56,266	32,454	32,117	58,305
Total emissions of waste (t)		1,118	263	793	1,508	3,583	2,582	195	345
Date of ISO14001 certification acquisition		November 2001	October 2003	January 2014	June 2000	October 2008	September 2001	January 2010	December 2000

*Unit:MWh

Asia

		KCCM	KCF	KSD	KUCC
Overview	Manufacturing facilities	Komatsu (Changzhou) Construction Machinery Corp.	Komatsu (Changzhou) Foundry Corp.	Komatsu (Shandong) Construction Machinery Corp.	Komatsu Undercarriage China Corp.
	Location	Jiangsu, China	Jiangsu, China	Shandong, China	Shandong, China
	Main products	Wheel loaders, hydraulic excavators	Iron castings and foundry molds for construction and casting parts	Mini construction equipment, hydraulic equipment and casting parts	Crawler type for construction machinery
	Number of employees	529	244	1,134	
Energy consumption	Electricity (MWh)	5,317	14,623	19,562	23,754
	Heavy oil, light oil, et al. (kℓ)	117	37	173	44.2
	Natural gas (thousand m³)	—	—	—	—
	LPG, et al. (t)	86 (LNG)	1,276 (LPG·LNG·Steam)	3,959 (LNG·Steam)	807 (LNG)
	Total energy consumption (GJ)	62,131	155,054	251,924	282,343
	CO_2 (t-CO_2)	4,664	11,836	17,572	20,493
Water consumption (t)		36,700	38,485	126,859	79,033
Total emissions of waste (t)		404	5,287	1,849	3,360
Date of ISO14001 certification acquisition		September 2000	December 1999	September 2013	December 2011

Notes 1. All data, except the number of employees, were derived from performances of all manufacturing facilities during FY2015.
The number of employees was based on the companies' data as of March 31, 2016.
2. Conversion to CO_2 and total energy consumption were based on statistical data of each region, country, and that of IEA for 2015.
3. Total emissions of waste are expressed as a composite of the amount recycled and the amount disposed.

Environmental Education and Environmental Accounting

Courses in Environmental Education and Training in Japan (excluding general environmental courses)

Komatsu and Komatsu Group manufacturing facilities in Japan (including the Research Division, Field Testing Department)

Organizer	No.	Course name	Target	Participants			
				FY2012	FY2013	FY2014	FY2015
Head Office	1	Advanced environmental education (held every two years)	Environmental specialists (Komatsu and affiliates)	—	19	—	21
	2	Overview of the ISO14000 series	Managers (Komatsu, affiliates, and business associates)	72	80	53	—
	3	ISO14001 Standards Amendment (2015 Revision)	Stakeholders regarding ISO14001 amandment	—	—	—	281
	4	Training of internal auditors / Refresher courses	Environmental auditors (Komatsu, affiliates, and business associates)	380	177	35	—
	5	Development and manufacturing (introductory)	Development and manufacturing staff (for second-year employees)	248	300	341	334
	6	Environmental training for manufacturing engineers	Assistant foremen/ foremen/ manufacturing engineers/ students of Komatsu Institute of Technology	160	152	242	252
	7	Training new employees	New Employees (Komatsu and affiliates)	354	391	261	333
	8	Lectures on the environment, experience-oriented education	Komatsu Group employees	1,316	1,408	1,527	2,729
	9	Education to refresh environmental understanding (e-Learning)	Komatsu Group managers and employees	153	193	154	181
	10	Newly appointed manager training	Komatsu Group newly appointed managers	—	—	155	168
Divisions overseeing environmental management at plants	1	Education in the basics of auditing	Managers and employees	221	257	100	185
	2	Overview of the ISO14000 series	Managers and employees	183	645	1,464	996
	3	Training of internal auditors	Environmental auditors	38	16	38	28
	4	Training new employees	New Employees	940	1,107	700	1,618
	5	Regulatory education and personnel exchange	Employees (and other participants)	1,066	3,274	1,245	467
	6	Specialist training	Environmental conservation practitioners (persons involved in regulatory affairs, etc.)	2,561	616	355	428

In addition to the education and training courses listed above, Komatsu also held courses dealing with environmental issues intended for sales agents.

Number of Persons Having Environment-related Certificate

Komatsu and Komatsu Group manufacturing facilities in Japan (including the Research Division, Field Testing Department)

Certificate name	Number of persons with certificate*			
	FY2012	FY2013	FY2014	FY2015
Pollution control administrators	230 (33)	241 (33)	249 (33)	247 (31)
Energy administrators	45 (10)	45 (10)	50 (10)	41 (9)
Environmental management system auditors	4	5	4	4

*Figures in parentheses indicate the number of officers required.

Effects on Society*1

Environmental impact reduction effects	Tangible benefits
● Environmental impact reduction resulting from on-site recycling methods ● Environmental impact reduction resulting from product operation ● Waste components reduction resulting from "Reman" business	● Reduction of expenses for processing waste materials ● Savings in operating and maintenance costs ● Reduction of repair costs

*1: Concerning the effects on society derived from product use by customers, the major items of qualitative information are shown here as a reference.

Environmental Costs (Investments and expenses)

Komatsu and Komatsu Group manufacturing facilities in Japan (excluding Komatsu House Ltd., including Technology Innovation Center)

Category	Investment			Expenses		
	FY2014	FY2015		FY2014	FY2015	
	Investment*1 (millions of yen)	Investment*1 (millions of yen)	Contents	Expenses*1 (millions of yen)	Expenses*1 (millions of yen)	Contents
1. Business area cost	1,297	1,586		2,858	2,603	
① Pollution prevention cost	365	235	● Investment for installation and conversion of pollution mitigation/prevention facilities installation of air pollution control equipment, etc.	730	673	● Cost of maintaining equipment for mitigation/prevention of air and water pollution and for noise and vibration prevention (labor and depreciation costs)
② Global environmental conservation cost	899	1,164	● Investment for implementing energy conservation measures installation of energy-saving air conditioners, heat-treating furnace energy saving facilities, etc.	1,348	1,106	● Cost of maintaining energy conservation facilities, such as cogeneration systems (labor and depreciation costs)
③ Resource circulation cost	33	187	● Investment for reducing the volume of waste materials (recycling facilities, etc.)	780	825	● Waste material processing cost
2. Upstream/downstream cost	9	9	● Additional investment needed to provide eco-friendly product services	152	288	● Reduction of the environmental impact of mass-production units
3. Administration cost	91	25	● Investment for beautifying manufacturing sites	787	731	● Cost of maintaining environmental management systems ● Cost of creating green spaces and beautifying manufacturing sites
4. R&D cost	303	281	● Investment in research facilities for reduction of environmental impact	21,513	21,514	● Cost of R&D activities to reduce the environmental impact of products ● Cost of R&D activities to develop environmentally-friendly construction equipment
5. Social activity cost	0	0		13	10	
6. Environmental remediation cost	0	0		253	123	● Cost of conducting surveys and remedial countermeasures related to soil and groundwater contamination ● PCB disposal costs
Total	1,699	1,901		25,576	25,270	

*1: All figures are rounded off to the nearest million yen.

Environmental Effects

Komatsu and Komatsu Group manufacturing facilities in Japan (excluding Komatsu House Ltd., including Technology Innovation Center)

Environmental impact reduction effects		
Items of environmental impact	Reduction amount (t/year)	Rate of year-on-year changes (%)
CO_2 emissions	-22,680	-11.9
Water consumption	-420,422	-14.0
Waste materials generation	-2,504	-16.4

Komatsu and Komatsu Group manufacturing facilities in Japan (excluding Komatsu House Ltd., including Technology Innovation Center)

Economic benefits				
Tangible benefits			Avoidance benefits of environmental risks*2	Contribution to profits*2
Type	Monetary value*1 (millions of yen)	Major activities		
Energy conservation	511	● Energy conversion, etc.	● In FY2015, there were no major accidents or legal infractions that would contaminate the environment. ● No litigation costs were required in Japan during FY2015.	● Proceeds from mobile recycling equipment ● Proceeds from value added due to reduced environmental impact of products (engines)
Resource conservation	3			
Waste materials reduction	533	● Promotion of recycling through thoroughgoing sorting		
Gain on sale of valuables	213	● Reuse of furnace slag for roadbed materials		
Other	2			
Total	1,262			

*1: Figures are rounded off to the nearest million yen.
*2: Komatsu used statements instead of numeral figures to describe the "Avoidance benefits of environmental risks" and the "Contribution to profits." The company will further develop concepts and ways to understand effects in these categories. The sales amounts of businesses for content presented in "Contributions to profits" in FY2015 are as follows:
● Mobile recycling equipment business: 15billion yen
● Engine business: 1,220 billion yen (Total for intra-Group sales from the Engine Business Division)

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